



January 30, 2008

James Baldwin
Illinois Environmental Protection Agency
Voluntary Site Remediation Program
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9276

**Subject: Addendum to Work Plan for Additional Soil and Ground Water Investigation
LPC#0311715101 – Cook County
Village of Lyons / Quarry Reclamation District TIF #4**

Dear Mr. Baldwin:

Bradburne, Briller & Johnson, LLC (BB&J), on behalf of the Village of Lyons c/o Robert Bush of Ancel Glink Diamond Bush Dicianni & Krafthefer, P.C. (Ancel Glink) is providing this *Addendum to Work Plan for Additional Soil and Ground Water Investigation* (Addendum to Work Plan) for the Village of Lyons Quarry Reclamation District TIF #4 property located in Lyons, Cook County, Illinois (Subject Property). Below, BB&J has provided a Work Plan for Additional Subsurface Investigation (Additional SI Work Plan) for review by the Illinois Environmental Protection Agency (IEPA) Voluntary Site Remediation Program (SRP). BB&J understands that this does not conform necessarily to any of the prescribed documents described 35 Illinois Administrative Code (IAC) 740 or 742. Rather, the intent of this document is to evaluate whether the next proposed phase of investigation will be adequate to address IEPA's perceived data gaps, specifically IEPA's comments No. 2 and No. 3, described in the letter issued by IEPA to the Village of Lyons on September 4, 2007, included as Attachment A.

In addition, BB&J is submitting the preliminary results of the work completed as proposed in the Work Plan for Additional Soil and Ground Water Investigation, dated October 22, 2007 (Work Plan). Preliminary results included herein are for information purposes at this time. Upon completion of the scope of work proposed for the Addendum to Work Plan, an Addendum to Comprehensive Site Investigation Report (Addendum to CSIR) will include results from the Work Plan and the Addendum to Work Plan, and will be submitted to the IEPA for review.

Background

The Subject Property has been enrolled in the IEPA voluntary SRP to assess the need for further investigative or remedial activities as well as to pursue a No Further Remediation (NFR) letter for the Subject Property. Based upon the IEPA's request for additional soil and ground-water sampling at the Subject Property, BB&J prepared a Work Plan for Additional Soil and Ground Water Investigation, dated October 22, 2007 (Work Plan). The following areas of the Subject Property required additional soil and/or ground-water investigation to address potential constituents of concern (COCs):

- Historical Asphalt Plant Area and Underground Diesel Pipe Release located in the west portion of the Subject Property and within the former filled-in quarry;

- Former Pond located in the north-northeast portion of the Subject Property and near the edge of the northeast boundary of the former filled-in quarry;
- Utility Line Trench located between the proposed community center in the south portion of the Subject Property and Ogden Avenue bordering the north portion of the Subject Property;
- Former Filled-in Quarry / Additional Site-wide Coverage located primarily in the north and central portions of the Subject Property in the areas of proposed recreational and green space use; and,
- Landscaped Areas in the areas of the commercial development and community center located in the north and south areas of the Subject Property, respectively.

As outlined in the Work Plan, BB&J recently collected soil samples at the above locations from the surface to the bedrock. A map showing the locations of the soil probes, soil borings, and monitoring wells completed to date is provided in Figure 1. However, as indicated in an email to you on December 18, 2007, BB&J was unable to collect soil samples from five soil probe locations (SIR GP-1, SIR GP-2, SIR GP-6, SIR GP-18, and SIR GP-26) due to piles of concrete rubble and excavation activities at the proposed probe and boring locations. Additionally, only three of the proposed seven permanent monitoring wells have been installed to date. Monitoring wells SIR MW-1, SIR MW-2, SIR MW-6, and SIR MW-7 have yet to be installed because the IEPA indicated in a letter dated November 19, 2007, "all soil borings and groundwater monitoring locations must penetrate bedrock." The entirety of the monitoring well installation was delayed in order to clarify this issue. However, during a conference call between Mr. James Baldwin of the IEPA and BB&J on November 27, 2008, alternative methodology was discussed for evaluating the ground-water conditions in bedrock at the Subject Property which would (1) provide a more focused investigation of bedrock ground-water conditions on site and (2) to minimize the potential to carry COCs down into the bedrock during drilling. A copy of the IEPA November 19, 2007 letter is provided in Attachment B. Furthermore, as addressed in a letter from Mr. Baldwin dated January 11, 2008, "additional soil and ground-water sampling must be conducted in the area of the Historical Asphalt Plant Area and Underground Diesel Pipe Release (LUST incident 931154), in association with the approved November 19, 2007 sampling plan." A copy of the IEPA January 10, 2008 letter is provided in Attachment C.

BB&J proposed the scope of work outlined in the following sections to address these outstanding issues:

Addendum to Work Plan

To further characterize the subsurface at the Subject Property, BB&J will provide oversight and/or conduct the following subsurface investigation services at the Subject Property. BB&J will use the previously prepared Health and Safety Plan (HSP) addressing site-specific COCs for use by BB&J's on-site representative. The HSP will be prepared for use only by BB&J employees and will not be relied on by subcontractors or any other third party, other than for informational purposes. The Illinois utility clearance services will be contacted 72 hours in advance in order to mark the locations of underground utilities.

Soil Investigation

BB&J proposes to collect soil samples via soil probes advanced to a maximum depth of 12 feet below ground surface (bgs) using direct-push technology (DPT) (i.e., Geoprobe®) from the remaining soil probes SIR GP-1, SIR GP-2, SIR GP-6, SIR GP-18, and SIR GP-26, as outlined in the Work Plan, however, the locations of these soil probes may be altered based field access conditions. See Figure 1 for the locations of the remaining soil probes to be completed during this investigation. The soil samples will be collected from the soil probes to reflect a “worst case” soil sample based upon field screening results or visual or olfactory indicators. BB&J will collect the soil samples, perform visual classification of soil type(s), and submit the samples for laboratory analyses in accordance with BB&J’s field procedures, as summarized in Attachment D. Soil samples will be collected and submitted for laboratory analyses of one or more of the following:

- Volatile organic compounds (VOCs) by United States Environmental Protection Agency (USEPA) Method 8260B; and,
- Polynuclear aromatic hydrocarbons (PAHs) by USEPA Method 8270C.

Additionally, to address the request for additional soil sampling from the Historical Asphalt Plant Area and Underground Diesel Pipe Release, BB&J proposes to collect eight soil samples (SIR GP-31 to SIR GP-38) via soil probes advanced to a maximum depth of 12 feet bgs using DPT (i.e., Geoprobe®). The eight proposed soil probes will be located approximately 20 feet north, south, east, and west of existing soil probe locations SIR GP-10 and SIR GP-11. Figure 2 shows detailed locations of soil probes to be completed in this area. The soil samples will be collected from the soil probes to reflect a “worst case” soil sample based upon field screening results or visual or olfactory indicators. BB&J will collect the soil samples, perform visual classification of soil type(s), and submit the samples for laboratory analyses in accordance with BB&J’s field procedures, as summarized in Attachment D. Soil samples will be collected and submitted for laboratory analyses of one or more of the following:

- VOCs by USEPA Method 8260B;
- PAHs by USEPA Method 8270C; and,
- Total organic carbon.

Ground-Water Investigation

BB&J proposes to oversee the conversion of four soil borings (SIR SB-1, SIR SB-2, SIR SB-6, and SIR SB-7) into permanent overburden monitoring wells (SIR MW-1, SIR MW-2, SIR MW-6, and SIR MW-7) to collect ground-water samples and evaluate the hydraulic gradient in the soil water bearing unit in the overburden fill material of the Subject Property. In addition, BB&J proposes to create monitoring well clusters from three of the four overburden monitoring well locations to investigate ground-water conditions within the bedrock. Three bedrock monitoring wells (SIR MW-1B, SIR MW-6B, and SIR MW-7B) will be installed at the same respective locations as SIR SB-1, SIR SB-6, and SIR SB-7 to an approximate depth of 20 feet below the bedrock surface to collect ground-water samples and evaluate the hydraulic gradient within the bedrock water bearing unit, if ground water is encountered. See Figure 1 for the locations of the remaining overburden and bedrock monitoring wells to be completed during this investigation. Details pertaining to the well installation and sample collection are provided below.

Additionally, BB&J proposes to resample the three existing monitoring wells (SIR MW-3, SIR MW-4, and SIR MW-5) for select parameters. See below for additional details.

Prior to the installation of the bedrock monitoring wells, BB&J proposes to collect soil samples via soil borings using a hollow-stem auger until termination depth (i.e., bedrock). The soil samples will be collected from the soil borings at desired depth intervals at depth within the subsurface, as described in Table 1. BB&J will collect the soil samples, perform visual classification of soil type(s), and submit the samples for laboratory analyses in accordance with BB&J's field procedures, as summarized in Attachment D. Soil samples will be collected and submitted for the following laboratory analysis:

- VOCs by USEPA Method 8260B; and,
- PAHs by USEPA Method 8270C.

Following the completion of soil sampling the soil borings will be backfilled using soil cuttings and/or bentonite.

Overburden and Bedrock Monitoring Well Installation

BB&J will oversee the installation of four overburden ground-water monitoring wells in the soil water bearing unit at or above bedrock-fill material interface at the following locations: SIR MW-1, SIR MW-2, SIR MW-6, and SIR MW-7. These overburden monitoring wells will be located at the same location as their respective soil boring locations (i.e., SIR SB-1, SIR SB-2, SIR SB-6, and SIR SB-7). The overburden monitoring wells will consist of 2-inch diameter polyvinyl chloride (PVC) well solid riser and 10-foot long screens, with 0.010-inch slots) and solid riser casing. The monitoring wells will be constructed in accordance with BB&J's Field Procedures included in Attachment D. The soil water bearing unit monitoring wells will be constructed as Type II wells.

As stated above, BB&J will also oversee the installation of three bedrock monitoring wells at the location of the previously sampled soil boring locations and soil water bearing unit monitoring wells. The soil borings for the bedrock monitoring wells will be advanced through the overburden soil to the top of rock surface using hollow stem auger (HAS) technology or, if necessary, using rotary drilling with a tricone bit. Using the same drilling techniques, the boring shall then be advanced 5 feet into bedrock. If it is necessary to use any drilling fluids at any time during drilling (including rock coring as described below), only potable water from a source approved by BB&J will be used during the drilling. No other drilling fluids will be used at all during the construction of the monitoring wells. Additionally, the boring is advanced into rock, an outer casing will be set to seal off the fill and minimize the risk of carrying contamination from the overburden fill down into the rock.

Centralizers will be used on the outer casing to center the outer casing in the boring. Once seated in the boring, the outer casing will be pressure-grouted in place by forcing grout through the top of the casing down to the bottom of the boring and into the annulus between the outside wall of the outer casing and boring wall. After grout appears at the ground surface and on all sides of the outer casing, the grout will be allowed to cure at least twelve hours. The outer casing will consist of either new 4-inch inside diameter (I.D.) low carbon steel, or new 4-inch ID Schedule 80 PVC, depending upon the equipment available to the drilling subcontractor's. After the grout has been allowed to cure, the outer casing will be reamed to the bottom of the boring using rotary drilling techniques and potable water drilling fluid.

The boring will be extended into the rock below the outer casing by with an HQ rock coring bit (3.99 outside diameter/rock boring hole nominal diameter). The rock boring shall be advanced to 20 feet below the bottom of the outer casing. It is anticipated that the rock coring will be completed in two 10-foot coring intervals (5-foot coring intervals in the event that drilling conditions change and the rock coring requires it). The rock cores will be transferred directly from the core barrel to a rock core box where it will be measured and described. Information included in the description will include: recovery lengths

and percentages; rock quality designator (RQD); physical characteristics (e.g. hardness, mechanical breaks, etc.); and geologic characteristics (e.g. formation description, weathering, joint/fracture orientation, etc.). The rock core will then be stored in rock core boxes and each box will be labeled, marked, and photographed (wet and dry) for future reference. The bedrock monitoring wells will be completed as an open hole monitoring well if the bedrock encountered is (1) competent and (2) it is determined that the boring will remain open.

Due to the on-going development activities at the Subject Property, steel protective stick-up covers will be seated around the outside of the 4-inch I.D. outer casing at ground surface. The covers will be set to a depth of at least 3 feet bgs and grouted in place.

Packer tests will also be conducted at each bedrock monitoring well location to obtain hydrologic information on discrete vertical zones within the bedrock. Fracture zones identified in the rock cores will be tested by admitting one gallon or more of potable water to predict how the zone will respond during packer tests. Prior to performing packer testing, BB&J will collect measurements of the piping diameter and length and related information to calculate friction loss. Packer testing may only include one test per boring, if measurements indicate the bedrock is not taking water. However, if the measurements indicate a water loss, the packer testing shall be conducted to isolate discrete zones within the bedrock boring, but the minimum length between packers (and/or an upper packer and the bottom of the boring) of 5 feet. Only potable water and from a source approved by BB&J shall be utilized during the packer testing.

It should be noted that if ground-water is not encountered to a depth of 20 feet within bedrock, the bedrock will be considered void of ground-water within the top 20 feet of bedrock. As such, the monitoring well will be abandoned and no ground-water sample will be collected for analysis.

Monitoring Gauging and Well Development

The purpose of well development is to remove fine material from the filter pack materials and/or formation materials during drilling, stabilize the filter pack (soil water bearing unit wells) and formation material around the well screen, and improve the hydraulic communication between the well and surrounding formation, in accordance with BB&J's field procedures in Attachment D.

Prior to well development, the all new monitoring wells will be gauged for well depth and water level. In addition, BB&J will gauge all existing monitoring wells at the Subject Property. BB&J will specifically develop the bedrock monitoring wells using air-lift ground-water development techniques. An air-oil coalescer will be placed in-line between the air compressor and down-hole tubing. A minimum of five well casing volumes will be removed from the bedrock monitoring wells. However, development will be deemed to have been completed for the bedrock monitoring wells once field measurements (e.g. pH, temperature, conductivity, etc.), performed by BB&J, have stabilized. Upon development, BB&J will wait seven days before sampling the wells to allow the wells to stabilize and for the aquifer in the immediate well vicinity to recover from the installation disturbance.

Bedrock Monitoring Well Purging and Sampling

Prior to well sampling, BB&J will purge each installed monitoring well (following procedures in Attachment D), following which one ground-water sample will be collected from the seven newly installed monitoring wells. The seven ground-water monitoring well locations will be sampled and analyzed for TCL parameters, as outlined in Table 1.

In addition, BB&J will resample three of the existing monitoring wells installed per the Work Plan (SIR MW-3, SIR MW-4, SIR MW-5). Ground-water samples will be collected and analyzed for one or more PAHs and a selection of metals which exceeded Class I and/or Class II remediation objectives in previous sampling events. See Table 1 for list of specific analyses.

Quality Assurance / Quality Control (QA/QC)

Sampling activities will include the collection and laboratory analyses of QA/QC samples consisting of an equipment rinsate blank and trip blank per day of investigation. Using the aforementioned analytical methods, the equipment blank of Geoprobe® liners and augers will be analyzed for TCL parameters, and one trip blank per cooler will be analyzed for VOCs. Additionally, an equipment blank of the polyvinyl bailers will be analyzed for TCL parameters.

Preliminary Results of Completed Portions of Work Plan

On November 19 through November 21, 2007, November 26 through November 28, 2007, November 30, 2007, and December 4 through December 6, 2007, BB&J provided oversight for the advancement of twenty five soil probes using DPT to a depth of 12 feet bgs. These soil probes included: SIR GP-3 through SIR GP-5, SIR GP-7 through SIR GP-17, SIR GP-19 through SIR GP-25, and SIR GP-27 through SIR GP-30. In addition, BB&J provided oversight for three HSA soil borings which were subsequently converted to permanent monitoring wells screened at or above the bedrock surface. These soil borings included SIR MW-3 to 19.5 feet bgs, SIR MW-4 to 96 feet bgs, and SIR MW-5 to 22 feet bgs. See Figure 1 for locations of the soil probes, soil borings, and monitoring well locations.

Specifically, all soil probe SIR GP soil samples, with the exception of soil probes SIR GP-8 and SIR GP-13, were analyzed for the following per the Work Plan:

- VOCs by USEPA Method 8260B; and,
- PAHs by USEPA Method 8270C.

Soil samples collected from soil probes SIR GP-8 and SIR GP-13 were analyzed for the following:

- TCL parameters as defined in Appendix A of 35 IAC 740, including RCRA metals by USEPA Method 6010B and 7470A/7471A; and,
- pH by USEPA Method 4500H+B.

All soil borings SIR MW soil samples were analyzed for the following:

- VOCs by USEPA Method 8260B; and,
- SVOCs by USEPA Method 8270C; and,
- Toxicity Characteristic Leaching Procedure (TLCP) metals by USEPA Method 1311, 6010B, 7470A.

The monitoring wells were installed as follows:

- SIR MW-3 was advanced in the south-central portion of the former pond area. The boring was terminated when bedrock was encountered, which occurred at 19.5 feet bgs. Ground-water was encountered at 17 feet bgs; therefore, the well screen was set from 9.5 to 19.5 feet bgs;

- SIR MW-4 was advanced in the center of the former quarry area. The boring was terminated when bedrock was encountered, which occurred at 96 feet bgs. Ground-water was encountered at 53 feet bgs and 67 feet bgs; therefore, the well screen was set from 48.5 to 68.5 feet bgs¹; and,
- SIR MW-5 was advanced in the center of the proposed recreational area on the western end of the Subject Property. The boring was terminated when bedrock was encountered at 22 feet bgs. Ground-water was encountered at 18 feet bgs; therefore, the well screen was set from 10.9 to 20.9 feet bgs.

Ground-water samples SIR MW-3 through SIR MW-5 were analyzed for the following:

- TCL parameters as defined in Appendix A of 35 IAC 740, including RCRA metals by USEPA Method 6010B and 7470A/7471A; and,
- pH by USEPA Method 4500H+B.

Preliminary analytical results of the soil and ground-water investigation can be found on Table 2 through Table 6.

Additionally, during BB&J's investigation, excavation and construction activities commenced at the southeast portion of the Subject Property for the foundation of the Community Center. The primary excavation at this area of the Subject Property extended through the existing asphalt parking lot at the former Materials Service Corporation (MSC) facility to a depth of approximately 5 feet bgs. In addition, the excavation area at the corner closest to the approximate boundary of the former quarry extended to a depth of approximately 20 feet bgs to assist in the structural stability of the foundation in the northwest corner of the Community Center. The excavated soil was then transported and placed on the western portion of the Subject Property, located along the sloped edge of the quarry adjoining the west adjoining property. Per the request of Mr. Baldwin and Ms. Van Orden of the IEPA during a phone conversation with BB&J regarding these activities, BB&J collected seven grab soil (GS) samples from various locations within the excavation area of the Community Center to characterize the soil in this area in addition to characterizing the soil being used to fill the sloped area on the west portion of the Subject Property. Additionally, one GS sample was collected from the southern end of an earthen berm located near Lawndale Avenue. See Figure 3 for locations of the GS samples.

All GS samples were analyzed for the following:

- TCL parameters as defined in Appendix A of 35 IAC 740, including RCRA metals by USEPA Method 6010B and 7470A/7471A; and,
- pH by USEPA Method 4500H+B.

Preliminary analytical results of this investigation can be found on Table 2 through Table 6. Boring Logs are attached as Attachment E.

¹ The bottom approximately 20 feet of soil from boring MW-4 consisted of a layer of tightly-packed clay and no ground-water was observed in this layer, nor at the fill material-bedrock interface. As such, BB&J believes this layer of clay to be a confining unit at this location, and therefore, the well screen was set where ground-water was observed above this clay layer.

Once the proposed scope of work from the Addendum to Work Plan is completed, BB&J will submit an Addendum CSIR that will include results obtained from investigations per the Work Plan and the Addendum to Work Plan for review by the IEPA SRP.

BB&J, on behalf of the Village of Lyons, requests that IEPA SRP consider this information with regard to its request for the need for additional subsurface investigations at the Subject Property. BB&J would be happy to meet with the IEPA to discuss this matter at your convenience. If you have any questions or concerns about this response, please feel free to contact Mr. Kevin McCartney or Mr. Andrew Bajorat of BB&J at (312) 644-8555.

Sincerely,

BRADBURNE, BRILLER & JOHNSON, LLC



Kevin McCartney
Project Manager



Andrew Bajorat, CHMM
Senior Scientist



J. Tim Bradburne, P.G.
Principal

Enclosures: Table 1 – Proposed Sampling Locations and Rationale
Table 2 – Summary of SIR GP Soil Laboratory Analytical Results
Table 3 – Summary of SIR MW Soil Laboratory Analytical Results
Table 4 – Summary of SIR MW Soil TCLP Laboratory Analytical Results
Table 5 – Summary of SIR Monitoring Well Ground-Water Laboratory Analytical Results
Table 6 – Summary of GS Soil Laboratory Analytical Results
Figure 1 – Completed and Proposed Sampling Locations per Work Plan and Addendum to Work Plan
Figure 2 – Proposed Sampling Locations within Area of Historic Asphalt Plant
Figure 3 – Grab Sample Locations
Attachment A – September 4, 2007 Letter
Attachment B – November 19, 2007 Letter
Attachment C – January 10, 2008 Letter
Attachment D – BB&J Field Procedures
Attachment E – Soil Boring Logs

TABLES

Table 1 - Proposed Sampling Locations and Rationale

Area of Investigation	Location IDs	Sample Media/Depth	Example Sample ID	Total Qty	COCs	Rationale / Methodology
Utility Line Trench	SIR GP-1, SIR GP-2, SIR GP-6	Subsurface Soil - "worst-case" sample to a maximum depth of 12 feet bgs.	SIR GP-1 (4-6)	3	3 samples for VOC, PAH	Three soil probes will be advanced along the utility line that will run from the proposed community center on the south portion of the Subject Property to the proposed commercial development on the north portion of the Subject Property and on to city sewer lines along Ogden Avenue. The three probes will be advanced to 12 feet bgs. One "worst-case" soil sample, based upon field screening results or visual or olfactory indicators, will be collected from each soil probe location. Each of the three soil samples will be analyzed for VOCs and PAHs.
Historical Asphalt Plant Area And Underground Diesel Piping Release	SIR SB-1, SIR SB-2 SIR MW-1 SIR MW-1B, SIR MW-2 SIR GP-31 to SIR GP-38.	Near Surface Soil - "worst-case" (0 to 10 feet bgs) Mid Depth Subsurface Soil "worst-case" (10 feet bgs to bedrock) Deep Soil - (soil overlying bedrock) Ground water Subsurface Soil - "worst-case" sample to a maximum depth of 12 feet bgs.	SIR SB-1 (0-2) - SIR SB-1 (20-22) SIR SB-1 (60-62) SIR MW-1 SIR MW-1B SIR GP-31	1 1 1 3 8	1 sample for VOC, PAH 1 sample for VOC, PAH 1 sample for VOC, PAH 3 samples for TCL 8 samples for VOC, PAH	Two overburden monitoring wells (SIR MW-1 and SIR MW-2) will be installed to top of bedrock within this area to characterize ground-water. Ground-water samples will be analyzed for TCL. Another monitoring well (SIR MW-1B) will be installed to a depth of approximately 20 feet within the bedrock at the same location as the overburden well. Soil samples from the installation of the overburden monitoring well will be collected near the surface, at mid depth, and at a depth above where bedrock is encountered (as described to the left). The soil samples will be analyzed for VOCs and PAHs. In addition, eight soil probes will be advanced 20 feet to the north, south, east, and west of existing soil probes SIR GP-10 and SIR GP-11. The eight probes will be advanced to 12 feet bgs. One "worst-case" soil sample, based upon field screening results or visual or olfactory indicators, will be collected from each soil probe location. Each of the eight soil samples will be analyzed for VOCs and PAHs. Four selected samples will be analyzed for Total Organic Carbon (TOC).
Former Pond Area	SIR SB-2 SIR MW-2, SIR MW-3	Near Surface Soil - "worst-case" (0 to 10 feet bgs) Mid Depth Subsurface Soil "worst-case" (10 feet bgs to bedrock) Deep Soil - (soil overlying bedrock) Ground water	SIR SB-2 (0-2) - SIR SB-1 (20-22) SIR SB-2 (60-62) SIR MW-2	1 1 1 1	1 sample for VOC, PAH 1 sample for VOC, PAH 1 sample for VOC, PAH 1 sample for TCL	One overburden monitoring well will be installed to top of bedrock within this area to characterize ground-water. One ground-water sample will be analyzed for TCL. Soil samples from the installation of the monitoring well will be collected near the surface, at mid depth, and at a depth above where bedrock is encountered (as described to the left). The soil samples will be analyzed for VOCs and PAHs. Additionally, overburden well SIR MW-3 will be resampled for lead and manganese.
Former Filled-in Quarry and Sitewide Soil and Ground Water Investigation	SIR GP-18 SIR SB-6, SIR SB-7 SIR MW-4, SIR MW-5, SIR MW-6, SIR MW-6B, SIR MW-7, and SIR MW-7B	Subsurface Soil - "worst-case" sample to a maximum depth of 12 feet bgs Near Surface Soil - "worst-case" (0 to 10 feet bgs) Mid Depth Subsurface Soil "worst-case" (10 feet bgs to bedrock) Deep Soil - (soil overlying bedrock) Ground water	SIR GP-18 (6-8) SIR SB-6 (0-2) - SIR SB-6 (20-22) SIR SB-6 (60-62) SIR MW-6	1 2 2 2 4	1 sample for VOC, PAH 2 samples for VOC, PAH 2 samples for VOC, PAH 2 samples for VOC, PAH 4 samples for TCL.	To further characterize the subsurface of the former filled-in quarry at the Subject Property and provide site-wide coverage, additional soil probes, soil borings, and monitoring wells throughout the central portion of the Subject Property. More specifically, the soil probes, soil borings, and monitoring wells will investigate the soil and ground-water in the area of the proposed recreational use of the Subject Property. The soil probes, soil borings, and monitoring wells are located within an approximately 150 by 150-foot grid located in central portion of the Subject Property. Further, additional soil probes will be spaced approximately 150 feet along the western and eastern property boundaries to provide further sitewide coverage. See Figure 2 for specific locations. One soil probe will be advanced within this area. The soil probe will be advanced to 12 bgs. One "worst-case" soil sample, based upon field screening results or visual or olfactory indicators, will be collected from each location. The soil sample will be analyzed for VOCs and PAHs. Two overburden monitoring wells will be installed to top of bedrock within this area to characterize ground-water. The ground-water sample will be analyzed for TCL. Another two monitoring wells will be installed to a depth of approximately 20 feet within the bedrock at the same location as the overburden well. Soil samples from the installation of the overburden monitoring well will be collected near the surface, at mid depth, and at a depth above where bedrock is encountered (as described to the left). The soil samples will be analyzed for VOCs and PAHs. Additionally, the two overburden monitoring wells will be resampled. Specifically, ground-water from SIR MW-4 will be resampled for PAHs, antimony, copper, iron, lead, manganese, nickel, and mercury. Ground-water from SIR MW-5 will be resampled for iron, lead, and manganese.
Landscape Soil Investigation	SIR GP-26	Subsurface Soil - "worst-case" sample to a maximum depth of 12 feet bgs	SIR GP-26 (6-8)	1	1 sample for VOC, PAH	As the proposed development will include landscaped areas surrounding the community center on the south portion of the Subject Property that will not be covered by an engineered barrier (or ten or three feet of clean soil, dependent upon laboratory results), one soil probe will be advanced to a depth of 12 feet bgs at these areas. See Figure 2 for specific locations. One "worst-case" soil sample, based upon field screening results or visual or olfactory indicators, will be collected from each soil probe location. The soil sample will be analyzed for VOCs and PAHs.

Notes:

bgs: Below ground surface
COC: Constituent of concern
IAC: Illinois Administrative Code
PAH: Polynuclear aromatic hydrocarbon by USEPA method 8270C

Qty: Quantity
TCL: Target Compound List parameters as defined in Appendix A of 35 IAC 740
TCLP: Toxicity Characteristic Leaching Procedure by USEPA method 1311, 6010B, and 7074A.
VOC: Volatile organic compound by USEPA method 8260B

Table 3: Summary of SIR MW Soil Laboratory Analytical Results

										Exposure Route-Specific Values for Soil ¹						Soil Component of the Ground-Water Ingestion Exposure Route ^{2,3}		Background Concentration of Chemicals (Metropolitan Areas) ^{4,5}
Area of Investigation:	Former Pond			Sitewide Coverage / Former Quarry						Residential ²		Industrial-Commercial ³		Construction Worker ³				
Soil Sample ID / Depth ⁶	SIR MW-3 (0-2) (mg/kg)	SIR MW-3 (4-6) (mg/kg)	SIR MW-3 (18-19.5) (mg/kg)	SIR MW-4 ⁷ (0-2) (mg/kg)	SIR MW-4 (8-10) (mg/kg)	SIR MW-4 (38-40) (mg/kg)	SIR MW-5 (2-3) (mg/kg)	SIR MW-5 (8-10) (mg/kg)	SIR MW-5 (16-18) (mg/kg)	Ingestion (mg/kg)	Inhalation (mg/kg)	Ingestion (mg/kg)	Inhalation (mg/kg)	Ingestion (mg/kg)	Inhalation (mg/kg)	Class I (mg/kg)	Class II (mg/kg)	(mg/kg)
pH	NA	NA	NA	NA	NA	7.94	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs																		
Carbon disulfide	ND	ND	ND	ND	ND	0.0051	ND	ND	ND	7,800	720	200,000	720	20,000	9.0	32	160	NA
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	0.0105	ND	ND	ND	780	1,200	20,000	1,200	20,000	12,000	0.4	1.1	NA
Ethylbenzene	ND	ND	ND	ND	ND	0.0424	ND	ND	ND	7,800	400	200,000	400	20,000	58	13	19	NA
Trichloroethene	ND	ND	ND	ND	ND	0.0066	ND	ND	ND	58	5	520	8.9	1,200	12	0.06	0.3	NA
Vinyl chloride	ND	ND	ND	ND	ND	0.0466	ND	ND	ND	0.46	0.28	7.9	1.1	170	1.1	0.01	0.07	NA
Xylene (Total)	ND	ND	ND	ND	ND	0.329	ND	ND	ND	16,000	320	410,000	320	41,000	6	150	150	NA
SVOCs																		
Acenaphthene	ND	0.142	ND	0.067	1.77	83.9	1.7	ND	ND	4,700	NRO	120,000	NRO	120,000	NRO	570	2900	0.13
Acenaphthylene	ND	ND	ND	0.05	0.111	12	0.597	ND	ND	NRO	NRO	NRO	NRO	NRO	NRO	NRO	NRO	0.07
Anthracene	ND	0.303	ND	0.255	54.3	138	5.6	ND	ND	23,000	NRO	610,000	NRO	610,000	NRO	12,000	59,000	0.4
Benzo(a)anthracene	ND	0.55	ND	0.505	2.17	46.7	15.3	ND	ND	0.9	NRO	8	NRO	170	NRO	2	8	1.8
Benzo(a)pyrene	ND	0.912	ND	0.494	1.81	29.6	22.8	ND	ND	0.09	NRO	0.8	NRO	17	NRO	8	82	2.1
Benzo(b)fluoranthene	ND	0.516	ND	0.329	1.61	29.2	23.6	ND	ND	0.9	NRO	8	NRO	170	NRO	5	25	2.1
Benzo(k)fluoranthene	ND	0.782	ND	0.48	1.37	21.5	14.7	ND	ND	9	NRO	78	NRO	1,700	NRO	49	250	1.7
Benzo(ghi)perylene	ND	0.673	ND	0.223	1.05	18.6	22.5	ND	ND	NRO	NRO	61,000	NRO	61,000	NRO	27,000	130,000	1.7
Chrysene	ND	0.542	ND	0.586	2.69	45.2	18.7	ND	ND	88	NRO	780	NRO	17,000	NRO	160	800	2.7
Dibenzo(a,h)anthracene	ND	0.191	ND	0.047	0.344	5.47	4.53	ND	ND	0.09	NRO	0.8	NRO	17	NRO	2	7.6	0.42
Fluoranthene	ND	1.26	ND	1.1	6.82	164	35.7	ND	ND	3,100	NRO	82,000	NRO	82,000	NRO	4,300	21,000	4.1
Fluorene	ND	0.194	ND	0.074	6.06	131	1.66	ND	ND	3,100	NRO	82,000	NRO	82,000	NRO	560	2,800	0.18
Indeno(1,2,3-cd)pyrene	ND	0.748	ND	0.227	1.17	19	21.1	ND	ND	0.9	NRO	8	NRO	170	NRO	14	69	1.6
Naphthalene	ND	0.168	ND	0.088	2.31	820	1.38	ND	ND	1,600	170	41,000	270	41,000	1.8	12	18	0.2
Phenanthrene	ND	0.942	ND	0.822	12.3	323	15.8	ND	ND	NRO	NRO	NRO	NRO	NRO	NRO	NRO	NRO	2.5
Pyrene	ND	1.01	ND	0.953	4.77	140	33.7	ND	ND	2,300	NRO	61,000	NRO	61,000	NRO	4,200	21,000	3

Notes:

Acronyms:

¹ Title 35 IAC 742, Appendix B

² Title 35 IAC 742, Appendix B, Table A

³ Title 35 IAC 742, Appendix B, Table B

⁴ Title 35 IAC 742, Appendix A, Table G.

⁵ Title 35 IAC 742, Appendix A, Table H.

⁶ Soil boring sample depths are presented in feet bgs.

⁷ Columns shaded in grey are believed to be located within the Former Quarry

[7.52] Indicates an exceedance of Industrial-Commercial and/or Construction Worker TACO ROs.

[1.12] Indicates an exceednce of Class I and/or Class II Soil Component of Ground-water Ingestion Exposure Route TACO ROs.

[34.6] Indicates an exceedance of Industrial-Commercial and/or Construction Worker TACO ROs AND of Class I and/or Class II Soil Component of Ground-water Ingestion Exposure Route TACO ROs.

[0.187] Indicated an exceedance of Residential, Industrial-Commercial, and/or Construction Worker TACO ROs which fall below Background Concentrations of Chemicals for Metropolitan Areas.

bgs - below ground surface

IAC - Illinois Administrative Code

IEPA - Illinois Environmental Protection Agency

mg/kg - milligrams per kilogram

NA - Not applicable

ND - Not detected above laboratory reporting limits

NRO - No remediation objectives established by the IEPA available for the route of exposure

PCB - Polychlorinated biphenyls

RO - Remediation Objective

RCRA - Resource Conservation and Recovery Act

SVOC - Semivolatile organic compounds

VOC - Volatile organic compounds

Prepared By: JDM / 1.18.08
Checked By: KLM / 1.18.08

Table 4: Summary of SIR MW Soil Laboratory Analytical Results

Area of Investigation:	Former Pond			Former Quarry			Sitewide Coverage			Soil Component of the Ground-Water Ingestion Exposure Route ¹	
	SIR MW-3 (0-2) (mg/L)	SIR MW-3 (4-6) (mg/L)	SIR MW-3 (18-19.5) (mg/L)	SIR MW-4 ³ (0-2) (mg/L)	SIR MW-4 (8-10) (mg/L)	SIR MW-4 (38-40) (mg/L)	SIR MW-5 (2-3) (mg/L)	SIR MW-5 (8-10) (mg/L)	SIR MW-5 (16-18) (mg/L)	Class I (mg/L)	Class II (mg/L)
TCLP Metals											
Arsenic	NS	NS	ND	NS	NS	0.044	NS	NS	ND	0.05	0.2
Barium	NS	NS	ND	NS	NS	ND	NS	NS	ND	2	2
Cadmium	NS	NS	ND	NS	NS	0.025	NS	NS	ND	0.005	0.05
Chromium	NS	NS	ND	NS	NS	0.018	NS	NS	ND	0.1	1
Lead	NS	NS	ND	NS	NS	0.152	NS	NS	ND	0.0075	0.1
Magnesium	NS	NS	ND	NS	NS	ND	NS	NS	ND	NRO	NRO
Manganese	NS	NS	ND	NS	NS	ND	NS	NS	ND	0.15	1
Silver	NS	NS	ND	NS	NS	ND	NS	NS	ND	0.05	NRO
Mercury	NS	NS	ND	NS	NS	ND	NS	NS	ND	0.002	0.01

Notes:

¹ Title 35 IAC 742, Appendix B, Table A and Table B

² Soil boring sample depths are presented in feet bgs.

³ Columns shaded in grey are believed to be located within the Former Quarry

[1.12] Indicates an exceednce of Class I and/or Class II Soil Component of Ground-water Ingestion Exposure Route TACO ROs.

Acronyms: bgs - below ground surface
mg/L - milligrams per liter
NA - Not applicable
ND - Not detected above laboratory reporting limits
NS - Not sampled
TCLP - Toxicity Characteristic Leaching Procedure

Table 5: Summary of SIR Monitoring Well Ground-Water Laboratory Analytical Results

Area of Investigation:	Former Pond	Former Quarry	Sitewide Coverage	Ground-Water ROs for the Ground-Water Component of the Ground-Water Ingestion Route ¹	
Ground-Water ID	SIR MW-3 GW	SIR MW-4 GW ²	SIR MW-5 GW	Class I	Class II
	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
pH	7.41	NS	7.6	NA	NA
VOCs					
Benzene	ND	0.0108	ND	0.005	0.025
Toluene	ND	0.0055	ND	1	2.5
Vinyl chloride	ND	0.0044	ND	0.002	0.01
Xylene (Total)	ND	0.0105	ND	10.0	10.0
SVOCs					
Acenaphthene	ND	0.02	ND	0.42	2.1
Anthracene	ND	0.037	ND	2.1	10.5
Benzo(a)anthracene	ND	0.0118	0.00044	0.00013	0.00065
Benzo(a)pyrene	ND	0.0078	ND	0.0002	0.002
Benzo(b)fluoranthene	ND	0.00958	ND	0.00018	0.0009
Benzo(k)fluoranthene	ND	0.00664	ND	0.00017	0.00085
Benzo(ghi)perylene	ND	0.0052	ND	NRO	NRO
Chrysene	ND	0.0141	ND	0.0015	0.0075
Dibenzo(a,h)anthracene	ND	0.0015	ND	0.0003	0.0015
Fluoranthene	ND	0.065	ND	0.28	1.4
Fluorene	ND	0.068	ND	0.28	1.4
Indeno(1,2,3-cd)pyrene	ND	0.0054	ND	0.00043	0.00215
Naphthalene	ND	0.273	ND	0.14	0.22
Phenanthrene	ND	0.111	ND	NRO	NRO
Pyrene	0.003	0.034	ND	0.21	1.05
Dibenzofuran	ND	0.024	ND	NRO	NRO
2,4-Dimethylphenol	ND	0.038	ND	0.14	0.14
2-Methylnaphthalene	ND	0.02	ND	NRO	NRO
2-Methylphenol	ND	0.098	ND	0.35	0.35
3 & 4-Methylphenol	ND	0.053	ND	NRO	NRO
Phenol	ND	0.021	ND	0.1	0.1
Metals					
Aluminum	1.34	5.7	1.4	NRO	NRO
Antimony	ND	0.02	ND	0.006	0.024
Arsenic	0.005	0.015	ND	0.05	0.2
Barium	0.104	0.23	0.144	2.0	2.0
Beryllium	0.001	0.002	0.001	0.004	0.5
Cadmium	ND	0.005	ND	0.005	0.05
Calcium	306	93.2	398	NRO	NRO
Chromium	0.005	0.05	0.008	0.1	1.0
Cobalt	0.005	0.066	0.03	1	1.0
Copper	0.025	1.98	0.016	0.65	0.65
Iron	4.71	22.6	5.74	5.0	5.0
Lead	0.028	2.65	0.02	0.0075	0.1
Magnesium	197	57.6	260	NRO	NRO
Manganese	0.419	0.701	3.45	0.15	10.0
Nickel	0.014	0.246	0.092	0.10	2.0
Potassium	18.3	76	17.7	NRO	NRO
Sodium	223	1,440	192	NRO	NRO
Vanadium	ND	0.02	ND	0.049	0.1
Zinc	0.05	3.66	0.055	5.0	10.0
Mercury	ND	0.0123	ND	0.002	0.01
Cyanide	ND	0.032	ND	0.2	0.6
Pesticides	ND	ND	ND	NA	NA
PCBs	ND	ND	ND	NA	NA

Notes:

¹ Title 35 Illinois Administrative Code (IAC) 742, Appendix B, Table E.
² Columns shaded in grey are believed to be located within the Former Quarry
[0.006] Indicates an exceedance of Class I and/or Class II Ground-water Component of the Ground-water Ingestion Route TACO Ros.
Acronyms:

mg/L - milligrams per liter
NA - Not applicable
ND - Not detected above laboratory reporting limits
NS - Not sampled
NRO - No Remediation Objective
PAH - Polynuclear aromatic hydrocarbon
RCRA - Resource Conservation and Recovery Act
RO - Remediation Objectives
SVOC - Semivolatile organic compound
VOC - Volatile organic compound

Table 6: Summary of GS Soil Laboratory Analytical Results

									Exposure Route-Specific Values for Soil ¹				Soil Component of the Ground-Water Ingestion Exposure Route ²		pH Specific Soil ROs for the Soil Component of the Ground-Water Ingestion Route ³						
Area of Investigation:	Former Quarry		Excavation Area	Earthen Berm	Excavation Area				Industrial-Commercial ²		Construction Worker ²				Ground-water Migration pH range (7.75 to 8.24)		Ground-water Migration pH range (8.25 to 8.74)		Ground-water Migration pH range (8.75 to 9.0)		Background Concentration of Chemicals (Metropolitan Areas) ^{4,5}
Soil Sample ID / Depth ⁶	GS-1 ⁷ 17 (mg/kg)	GS-2 15 (mg/kg)	GS-3 5 (mg/kg)	GS-4 5 (mg/kg)	GS-5 5 (mg/kg)	GS-6 5 (mg/kg)	GS-7 5 (mg/kg)	GS-8 5 (mg/kg)	Ingestion (mg/kg)	Inhalation (mg/kg)	Ingestion (mg/kg)	Inhalation (mg/kg)	Class I (mg/kg)	Class II (mg/kg)	Class I ³ (mg/kg)	Class II ⁴ (mg/kg)	Class I ³ (mg/kg)	Class II ⁴ (mg/kg)	Class I ³ (mg/kg)	Class II ⁴ (mg/kg)	(mg/kg)
pH	8.95	8.88	8.99	9.59	8.77	9.78	8.84	7.77	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOCs																					
Acetone	ND	ND	ND	ND	ND	ND	0.117	ND	NRO	100,000	NRO	100,000	25	25	NA	NA	NA	NA	NA	NA	NA
Benzene	ND	0.12	ND	ND	ND	ND	ND	ND	100	1.6	2,300	2.20	0.03	0.17	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	ND	ND	ND	ND	ND	ND	0.0203	ND	200,000	720	20,000	9.0	32	160	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	ND	0.372	ND	ND	ND	ND	ND	ND	200,000	400	20,000	58	13	19	NA	NA	NA	NA	NA	NA	NA
Toluene	ND	0.125	ND	ND	ND	ND	ND	ND	410,000	650	410,000	42	12	29	NA	NA	NA	NA	NA	NA	NA
Xylene (Total)	ND	0.952	ND	ND	ND	ND	ND	ND	410,000	320	41,000	6	150	150	NA	NA	NA	NA	NA	NA	NA
SVOCs																					
Acenaphthene	2.17	24.7	ND	ND	ND	ND	ND	ND	120,000	NRO	120,000	NRO	570	2900	NA	NA	NA	NA	NA	NA	0.13
Anthracene	12	257	ND	ND	ND	ND	ND	ND	610,000	NRO	610,000	NRO	12,000	59,000	NA	NA	NA	NA	NA	NA	0.4
Benzo(a)anthracene	3.73	10	ND	ND	ND	ND	ND	ND	8	NRO	170	NRO	2	8	NA	NA	NA	NA	NA	NA	1.8
Benzo(a)pyrene	3.56	7.62	ND	ND	ND	ND	ND	ND	0.8	NRO	17	NRO	8	82	NA	NA	NA	NA	NA	NA	2.1
Benzo(b)fluoranthene	3.81	7.48	ND	ND	ND	ND	ND	ND	8	NRO	170	NRO	5	25	NA	NA	NA	NA	NA	NA	2.1
Benzo(k)fluoranthene	4.29	9.15	ND	ND	ND	ND	ND	ND	78	NRO	1,700	NRO	49	250	NA	NA	NA	NA	NA	NA	1.7
Carbazole	4.44	73	ND	ND	ND	ND	ND	ND	290	NRO	6,200	NRO	0.6	2.8	NA	NA	NA	NA	NA	NA	NA
Chrysene	7.5	19.1	ND	ND	ND	ND	ND	ND	780	NRO	17,000	NRO	160	800	NA	NA	NA	NA	NA	NA	2.7
Dibenzofuran	1.86	19.7	ND	ND	ND	ND	ND	ND	NRO	NRO	NRO	NRO	NRO	NRO	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	8.67	35.2	ND	ND	ND	ND	ND	ND	82,000	NRO	82,000	NRO	4,300	21,000	NA	NA	NA	NA	NA	NA	4.1
Fluorene	2.82	35.5	ND	ND	ND	ND	ND	ND	82,000	NRO	82,000	NRO	560	2,800	NA	NA	NA	NA	NA	NA	0.18
2-Methylnaphthalene	1.63	35.2	ND	ND	ND	ND	ND	ND	NRO	NRO	NRO	NRO	NRO	NRO	NA	NA	NA	NA	NA	NA	0.14
Naphthalene	6.91	174	ND	ND	ND	ND	ND	ND	41,000	270	41,000	1.8	12	18	NA	NA	NA	NA	NA	NA	0.2
Phenanthrene	9.05	69.8	ND	ND	ND	ND	ND	ND	NRO	NRO	NRO	NRO	NRO	NRO	NA	NA	NA	NA	NA	NA	2.5
Pyrene	7.83	31.7	ND	ND	ND	ND	ND	ND	61,000	NRO	61,000	NRO	4,200	21,000	NA	NA	NA	NA	NA	NA	3
Metals																					
Aluminum	6,480	7,970	5,220	7,990	8,990	12,700	11,300	20,300	NRO	NRO	NRO	NRO	NA	NA	NRO	NRO	NRO	NRO	NRO	NRO	9,500
Antimony	1.2	1.1	ND	ND	ND	ND	ND	ND	820	NRO	82	NRO	NA	NA	5	20	5	20	5	20	4
Arsenic	14.5	12.1	5.4	6.8	4.3	9.6	6	10.5	13 ⁸	1,200	61	25,000	NA	NA	31	120	31	120	32	130	13
Barium	62.9	61.6	22.2	34.1	62.1	83.9	62.2	129	140,000	910,000	14,000	870,000	NA	NA	1,800	1,800	2,100	2,100	NRO	NRO	110
Beryllium	1.3	1.6	0.3	0.4	0.5	0.6	0.6	1.1	4,100	2,100	410	44,000	NA	NA	8,000	1,000,000	NRO	NRO	NRO	NRO	0.59
Cadmium	1.6	1.6	0.4	0.5	0.4	0.5	0.5	0.6	2,000	2,800	200	59,000	NA	NA	59	590	430	4,300	NRO	NRO	0.6
Calcium	78,800	87,300	41,700	27,300	50,200	13,500	23,500	8,180	NRO	NRO	NRO	NRO	NA	NA	NRO	NRO	NRO	NRO	NRO	NRO	9,300
Chromium	18.8	22.2	8.9	12.2	13.1	16.1	14.4	26.7	6,100	420	4,100	690	NA	NA	32	NRO	NRO	NRO	NRO	NRO	16.2
Cobalt	5.5	6.1	4.7	5.3	7.6	11.3	5.4	10.8	120,000	NRO	12,000	NRO	NA	NA	NRO	NRO	NRO	NRO	NRO	NRO	8.9
Copper	100	80.6	11.7	13.2	14.6	14.4	21.5	20.6	82,000	NRO	8,200	NRO	NA	NA	330,000	330,000	NRO	NRO	NRO	NRO	19.6
Iron	21,200	23,300	11,900	14,800	14,000	22,600	14,600	28,200	NRO	NRO	NRO	NRO	NA	NA	NRO	NRO	NRO	NRO	NRO	NRO	15,900
Lead	59.6	53.8	5	6.5	6	13.8	20	13.8	800	NRO	700	NRO	NA	NA	107	1,420	107	1,420	107	1,420	36
Magnesium	37,200	55,500	24,600	17,300	30,500	7,430	14,600	7,640	NRO	NRO	730,000	NRO	NA	NA	NRO	NRO	NRO	NRO	NRO	NRO	4,820
Manganese	181	203	266	254	446	611	173	409	41,000	91,000	4,100	8,700	NA	NA	NRO	NRO	NRO	NRO	NRO	NRO	636
Nickel	88.2	84.9	13.1	15.9	17	16.6	14	25.6	41,000	21,000	4,100	440,000	NA	NA	3,800	76,000	NRO	NRO	NRO	NRO	18
Potassium	1,880	2,360	845	1,140	1,210	1,440	2,260	2,360	NRO	NRO	NRO	NRO	NA	NA	NRO	NRO	NRO	NRO	NRO	NRO	1,268
Silver	ND	0.2	ND	ND	ND	ND	ND	ND	10,000	NRO	1,000	NRO	NA	NA	39	NRO	NRO	NRO	NRO	NRO	0.55
Sodium	1,380	1,370	293	1,340	810	2,810	3,180	2,020	NRO	NRO	NRO	NRO	NA	NA	NRO	NRO	NRO	NRO	NRO	NRO	130
Vanadium	23.4	27.2	19.5	ND	22.6	35.6	26.8	46.2	14,000	NRO	1,400	NRO	NA	NA	980	NRO	980	NRO	980	NRO	25
Zinc	323	233	26.7	33.3	29	68.4	68.7	60.9	610,000	NRO	61,000	NRO	NA	NA	53,000	110,000	NRO	NRO	NRO	NRO	95
Mercury	0.19	0.18	ND	ND	ND	ND	ND	ND	610	16	61	0.1	NA	NA	6.4	32	8	40	NRO	NRO	0.06
Cyanide	0.43	0.36	ND	ND	ND	ND	ND	ND	NRO	NRO	NRO	NRO	NA	NA	40	120	40	120	40	120	0.51
Pesticides	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCBs																					
Aroclor 1524	0.638	0.546	ND	ND	ND	ND	ND	ND	1	*	1	*	*	*	NA	NA	NA	NA	NA	NA	NA

Notes:

¹ Title 35 IAC 742, Appendix B

² Title 35 IAC 742, Appendix B, Table B

³ Title 35 IAC 742, Appendix B, Table C and Table D

⁴ Title 35 IAC 742, Appendix A, Table G.

⁵ Title 35 IAC 742, Appendix A, Table H.

⁶ Soil boring sample depths are presented in feet bgs

⁷ Columns shaded in grey are believed to be located within the Former Quarry

* 40 CFR 761 contains applicability requirements and methodologies for the development of PCB remediation objectives. Requests for approval of a Tier 3 evaluation must address the applicability of 40 CFR 761.

[7.52] Indicates an exceedance of Industrial-Commercial and/or Construction Worker TACO ROs.

[1.12] Indicates an exceedance of Class I and/or Class II Soil Component of Ground-water Ingestion Exposure Route TACO ROs.

[34.6] Indicates an exceedance of Industrial-Commercial and/or Construction Worker TACO ROs AND of Class I and/or Class II Soil Component of Ground-water Ingestion Exposure Route TACO ROs.

NRO - No remediation objectives established by the IEPA available for the route of exposure

PCB - Polychlorinated biphenyls

RO - Remediation Objective

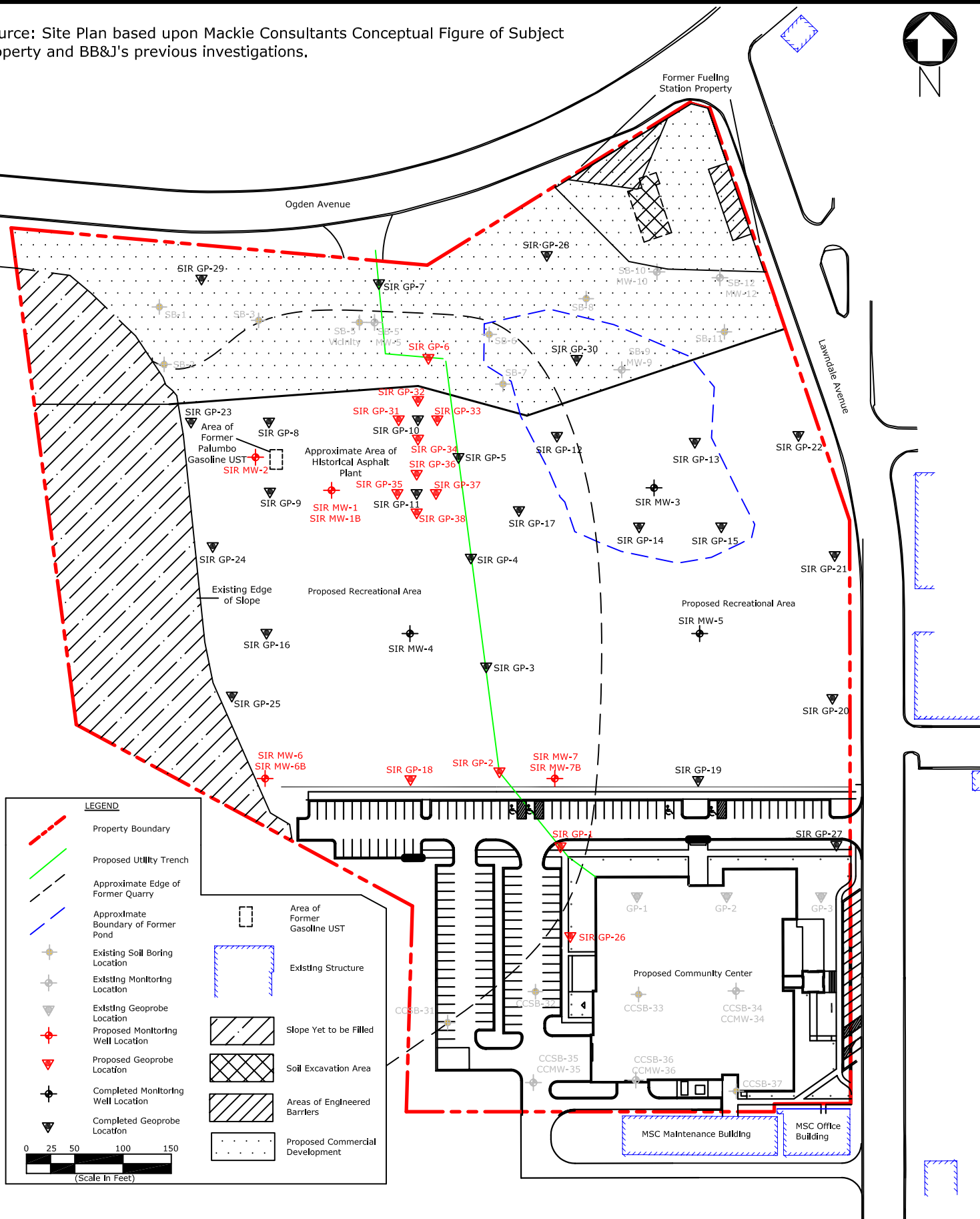
RCRA - Resource Conservation and Recovery Act

SVOC - Semivolatile organic compounds

VOC - Volatile organic compounds

FIGURES

Source: Site Plan based upon Mackie Consultants Conceptual Figure of Subject Property and BB&J's previous investigations.



Prepared by/Date: KLM / 1-11-2008
Checked by/Date: JTB / 1-15-2008

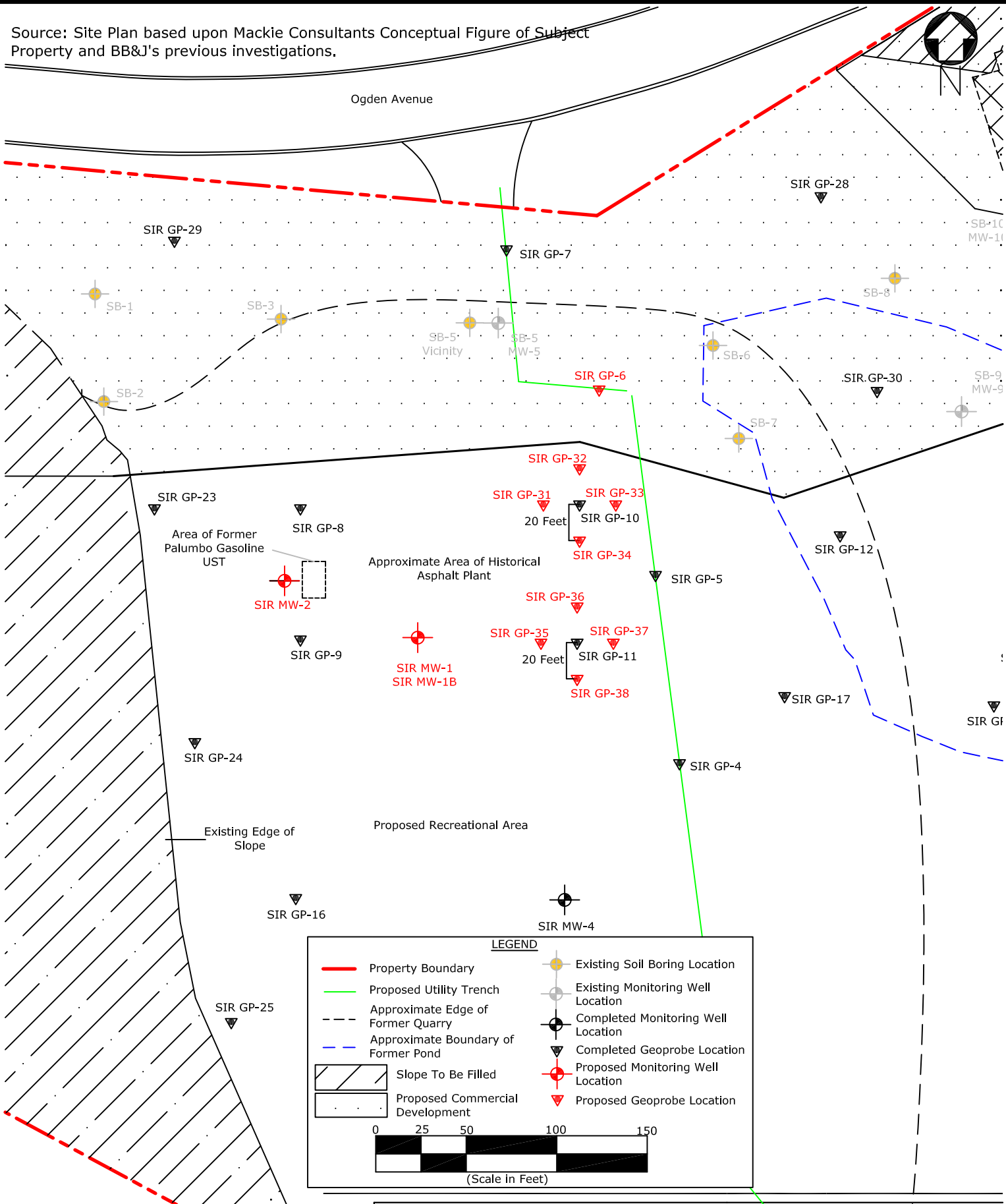
Quarry Reclamation District TIF #4
Southwest Intersection of Ogden and Lawndale
Avenues
Village of Lyons, IL

Bradburne, Briller & Johnson, LLC
www.bbjgroup.com

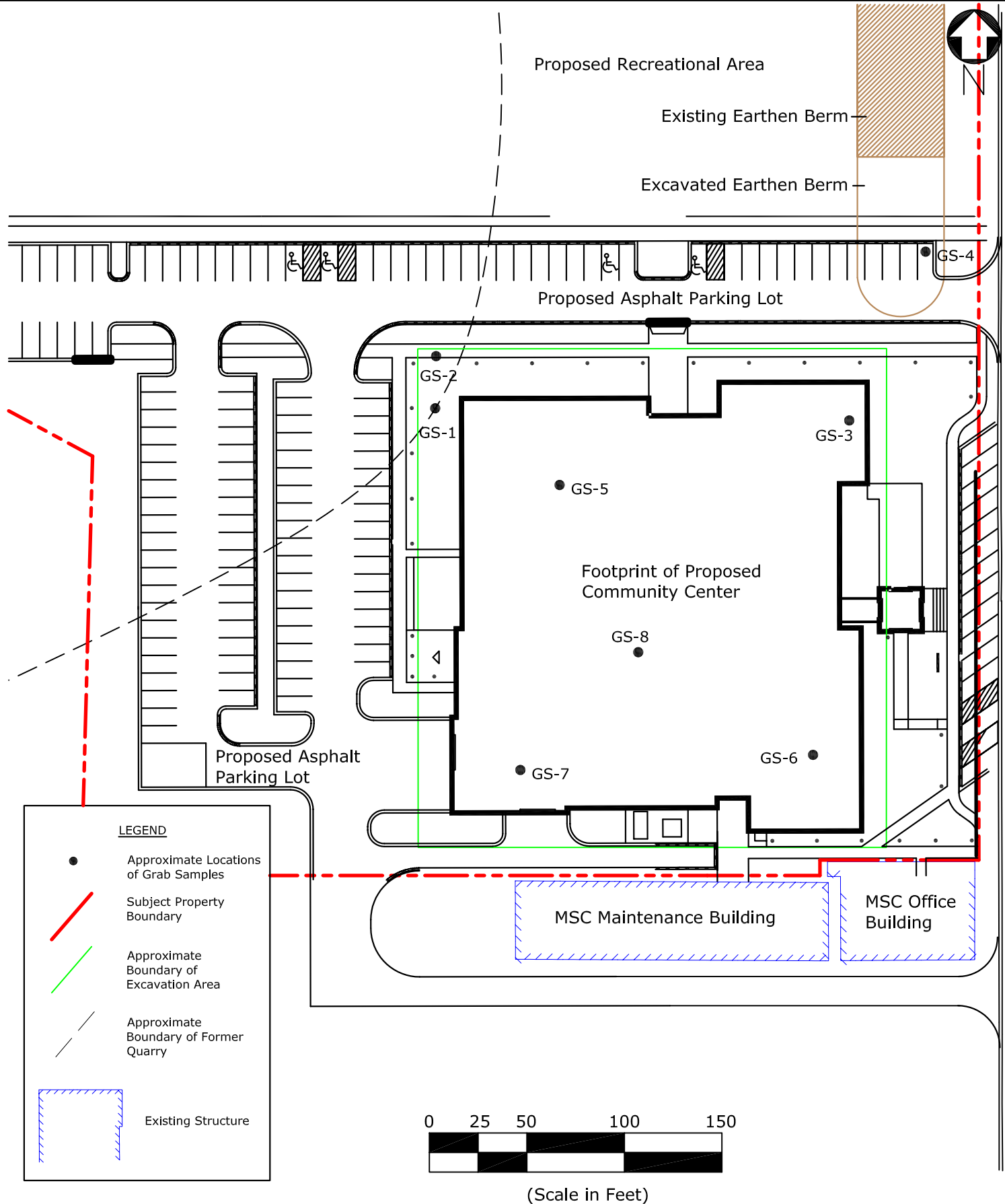
Completed and Proposed Sampling
Locations per Work Plan and Addendum to
Work Plan

Figure 1

Source: Site Plan based upon Mackie Consultants Conceptual Figure of Subject Property and BB&J's previous investigations.



Prepared by/Date: KLM / 1-11-2008
Checked by/Date: JTB / 1-15-2008



Prepared by/Date: JM / 1-18-2008
 Checked by/Date: KM / 1-18-2008

ATTACHMENT A – SEPTEMBER 4, 2007 LETTER



ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 - (217) 782-3397
JAMES R. THOMPSON CENTER, 100 WEST RANDOLPH, SUITE 11-300, CHICAGO, IL 60601 - (312) 814-6026

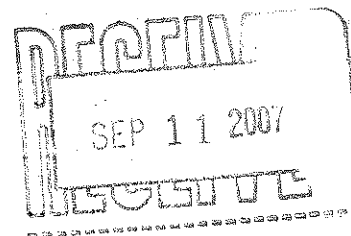
ROD R. BLAGOJEVICH, GOVERNOR DOUGLAS P. SCOTT, DIRECTOR

(217) 782-6761

September 4, 2007

7007 0220 0000 0154 8017

Village of Lyons c/o Robert Bush
Ancil Glink Diamond Bush Dicianni & Krafthefer, P.C.
140 South Dearborn Street
Chicago, IL 60606



Re: LPC# 0311715101 -- Cook County
Village of Lyons / Quarry Reclamation District TIF #4
Site Remediation / Technical Reports

Dear Mr. Bush:

The Illinois Environmental Protection Agency (Illinois EPA) has reviewed the *Report of Phase II Environmental Site Assessment, Report of Phase II Environmental Site Assessment and Limited Surface Flux Assessment, and Limited and Preliminary Soil-Gas Investigation Report* (all received August 3, 2007 / Log No 07-34660), submitted by Bradburne, Briller & Johnson, LLC for the Site Remediation Project located south of the southwest corner of Ogden & Lawndale Avenue, Lyons, Illinois. The referenced documents are denied because they do not address the requirements of Section 740 and 742.

On August 27, 2007 the Illinois EPA met with Tim Bradburne and Kevin McCartney (Bradburne, Briller & Johnson, LLC), Anna Van Orden (Illinois EPA Des Plaines Regional Office) and Kevin Close (Municipal Consultant) to discuss the requirements necessary in obtaining a comprehensive no further remediation letter. The comments below highlight our discussion in addressing the requirements of Section 740 and 742.

- 1) In accordance with Section 740 Subpart D all remedial applicants entering a site into the Site Remediation Program must submit documentation that meets the requirements for a Site Investigation, Determination of remediation objectives, Remedial Action, and Remedial Action Completion.
 - The Site Investigation Report must address the requirements of Section 740.415, 420, and 425.
 - The Remediation Objectives Report must demonstrate that the requirements for excluding an exposure route under 35 Ill. Adm. Code 742 has been satisfied.
 - The Remedial Action Report describes a proposed remedy toward achieving the approved remediation objectives for the remediation site.
 - The Remedial Action Completion Report shall demonstrate that remedial action was completed in accordance with the approved Remedial Action Plan and remediation objectives.

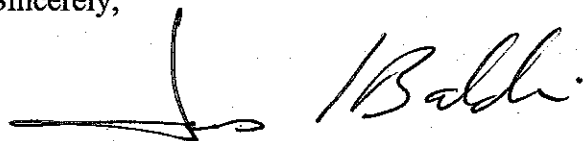
- 2) A soil investigation must be conducted to determine the presence of any contaminant of concern (COC). This site soil investigation must be conducted across the entire remediation site, in particular in the area where material filled the former Quarry pit. To aid in fulfilling Section 740 and 742 requirements the investigation must also include:
 - Identification of all material used to fill the former quarry area.
 - Total thickness of fill material across the entire remediation site (depth to bedrock).
 - The presence and sampling of any leachate located within the quarry fill material and/or bedrock.
 - Soil sampling results identifying any contaminants of concern.
 - If any soil contamination (COC above Tier 1 soil ingestion and soil inhalation remediation objectives) is detected, the vertical and lateral extent of contamination must be defined.
- 3) A detailed groundwater investigation must be conducted across the entire remediation site. The groundwater investigation must identify all groundwater producing zones from ground surface to below the maximum depth of the quarry pit/retention pond. Each zone of groundwater must have its corresponding hydrogeologic parameters defined (such as, hydraulic gradient, hydraulic conductivity, etc.). Since this is a fractured bedrock area an appropriate model for this type of geology with groundwater flow may have to be developed.
- 4) Remediation site base maps must be presented with scale and north arrow.
- 5) The *Report of Phase II Environmental Site Assessment*, page 4 mentions "a sample collected from the vicinity of SB-5 based on observed black, pooling liquid at the surface" was exempted from the May 14 through May 18 soil sample investigation. Please provide clarification as to why this was not sampled or tested for in SB-5.
- 6) All reports mention that a USEPA on-line J&E calculator was used to evaluate the vapor intrusion pathway into the proposed commercial buildings to be constructed on the northern portion of the remediation site. These model results have yet to be presented. Illinois EPA currently is circulating anticipated future indoor air objectives. The remedial applicant may wish to consider these draft regulations in the analysis.
- 7) Pursuant to 35 IAC 740.425(b)(2)(E), the report must include a legal description or reference to plat showing the boundaries of the Remediation Site. Also, please include the real estate permanent identification number(s) (PIN) for the site. This information will be required for drafting the NFR letter.

The Illinois EPA requests not less than a fourteen (14) calendar day notification of all future site investigation and remedial activities in order to coordinate Illinois EPA oversight. This notification is particularly important when groundwater or soil samples are being collected. In addition, pursuant to 35 Illinois Administrative Code ("IAC") 740.415(d)(6), all quantitative analyses of samples collected on or after January 1, 2003, and utilizing any of the approved test

methods identified in 35 IAC 186.180, shall be completed by an accredited laboratory in accordance with the requirements of 35 IAC 186. Quantitative analyses not utilizing an accredited laboratory in accordance with Part 186 shall be deemed invalid.

The Illinois EPA requests a written response to the comments presented above. Please submit the original and one copy of all future reports or correspondence to the Illinois EPA regarding this site. If you have any questions regarding the comments above, I may be contacted at the address above or (217) 524-7207.

Sincerely,

A handwritten signature in black ink, appearing to read "J. Baldwin", is written over a horizontal line.

James L. Baldwin, LPG
Project Manager
Voluntary Site Remediation Unit
Remedial Project Management Section
Division of Remediation Management
Bureau of Land

JLB:jlb

cc: Tim Bradburne
Bradburne, Briller & Johnson, LLC
515 North State Street, Suite 2200
Chicago, IL 60610

Kevin Close
Municipal Consultant
3628 Prairie Avenue
Brookfield, IL 60513

ATTACHMENT B – NOVEMBER 19, 2007 LETTER



ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

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ROD R. BLAGOJEVICH, GOVERNOR

DOUGLAS P. SCOTT, DIRECTOR

(217) 782-6761

7007 0220 0000 0152 6756

November 19, 2007

Village of Lyons c/o Robert Bush
Ancil Glink Diamond Bush Dicianni & Krafthefer, P.C.
140 South Dearborn Street
Chicago, IL 60606

Re: LPC# 0311715101 -- Cook County
Village of Lyons / Quarry Reclamation District TIF #4
Site Remediation / Technical Reports

Dear Mr. Bush:

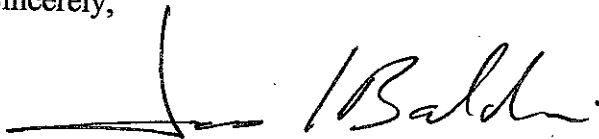
The Illinois Environmental Protection Agency (Illinois EPA) has reviewed the *Proposed Sampling Plan* (received November 9, 2007 / Log No 07-35802), submitted by Bradburne, Briller & Johnson, LLC for the Site Remediation Project located south of the southwest corner of Ogden & Lawndale Avenue, Lyons, Illinois. The proposed sampling locations for the remediation site are approved; however, in accordance with the September 4, 2007 Agency Comment Letter (comments 2 and 3) the following criteria needs to be followed:

- 1) All soil borings and groundwater monitoring locations must penetrate bedrock. The Illinois EPA has been receiving a number of citizen concerns about this site and a complete investigation must be submitted regarding the composition of the fill material and its association within to quarry / retention pond boundary, along with its influence on the groundwater and potential off-site migration of contamination.
- 2) If there is more than one groundwater zone to be monitored, additional groundwater monitoring wells (or nest) may be required.
- 3) If required, more than one soil sample may need to be obtained from any given soil boring to define the vertical and lateral extent of soil/groundwater contamination. The sampling protocol needs to be sure that adequate documentation is provided for all levels of observed contamination, if present.
- 4) As a precautionary note, geoprobes are not capable of penetrating bedrock, so collecting soil samples using a rotary drill may be more applicable in obtaining the information describing the condition of fill material within the boundary of the former quarry / retention pond. If the quarry/retention pond was backfilled with concrete, penetration of the geoprobe may be refused before reaching bedrock.

The Illinois EPA requests not less than a fourteen (14) calendar day notification of all future site investigation and remedial activities in order to coordinate Illinois EPA oversight. This notification is particularly important when groundwater or soil samples are being collected. In addition, pursuant to 35 Illinois Administrative Code ("IAC") 740.415(d)(6), all quantitative analyses of samples collected on or after January 1, 2003, and utilizing any of the approved test methods identified in 35 IAC 186.180, shall be completed by an accredited laboratory in accordance with the requirements of 35 IAC 186. Quantitative analyses not utilizing an accredited laboratory in accordance with Part 186 shall be deemed invalid.

If you have any questions I may be contacted at the address above or (217) 524-7207.

Sincerely,



James L. Baldwin, LPG
Project Manager
Voluntary Site Remediation Unit
Remedial Project Management Section
Division of Remediation Management
Bureau of Land

JLB:jlb

cc: Kevin McCartney
Bradburne, Briller & Johnson, LLC
515 North State Street, Suite 2200
Chicago, IL 60610

Kevin Close
Municipal Consultant
3628 Prairie Avenue
Brookfield, IL 60513

ATTACHMENT C – JANUARY 10, 2008 LETTER



ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 – (217) 782-3397
JAMES R. THOMPSON CENTER, 100 WEST RANDOLPH, SUITE 11-300, CHICAGO, IL 60601 – (312) 814-6026

ROD R. BLAGOJEVICH, GOVERNOR

DOUGLAS P. SCOTT, DIRECTOR

(217) 782-6761

January 10, 2008

7004 2510 0001 8617 7832

Village of Lyons c/o Robert Bush
Ancil Glink Diamond Bush Dicianni & Krafthefer, P.C.
140 South Dearborn Street
Chicago, IL 60606

Re: LPC# 0311715101 – Cook County
Village of Lyons / Quarry Reclamation District TIF #4
Site Remediation / Technical Reports

Dear Mr. Bush:

The Illinois Environmental Protection Agency (Illinois EPA) has reviewed the *Comprehensive Site Investigation Report* (received December 17, 2007 / Log No 07-36131), submitted by Bradburne, Briller & Johnson, LLC for the Site Remediation Project located south of the southwest corner of Ogden & Lawndale Avenue, Lyons, Illinois. The documentation provided in this report will not be approved until a detailed response to the November 19, 2007 IEPA response letter to *Proposed Sampling Plan* (received November 9, 2007 / Log No 07-35802) has been submitted, reviewed and approved. In addition, all comments corresponding to Illinois EPA letters issued September 4, 2007, October 2, 2007, and November 19, 2007 must be addressed.

Upon review of the *Comprehensive Site Investigation Report* the following concerns must be addressed. These comments, along with all other comments in previous letters, may be addressed in a forthcoming addendum to this CSI. This addendum must incorporate all information collected during the approved soil and groundwater site investigation.

- 1) LUST Incident 931154 is discussed in Section 2.2 of the *Comprehensive Site Investigation Report*. To release this incident through the Illinois EPA- Site Remediation Program the enclosed Election to Precede Form must be submitted.
- 2) Section 2.2 of the *Comprehensive Site Investigation Report* describes the soil remediation concerning LUST incident 931154 and confirmation sampling. It states "concentrations of Benzene and several PAHs in the soil samples collected (from the sidewalls and excavation floor) exceeded IEPA TACO Tier 1 soil ROs for industrial-commercial properties. However, based upon review of the analytical data by BB&J, only concentrations of naphthalene exceeded ROs for the construction worker inhalation exposure pathway." The only naphthalene exceedance provided thus far is detected in soil boring SB-7, located in the northern portion of the remediation site. According to the sampling plan (approved November 19, 2007) soil borings have not been gathered in the area where LUST Incident 931154 is indicated. Please provide documentation showing where soil samples associated with LUST Incident 931154 (AE Report found in Appendix D) and SB-7 are in relation to each other.

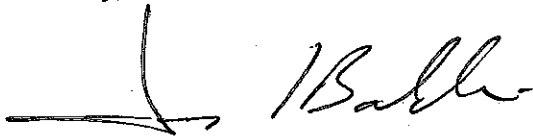
ROCKFORD – 4302 North Main Street, Rockford, IL 61103 – (815) 987-7760 • DES PLAINES – 9511 W. Harrison St., Des Plaines, IL 60016 – (847) 294-4000
ELGIN – 595 South State, Elgin, IL 60123 – (847) 608-3131 • PEORIA – 5415 N. University St., Peoria, IL 61614 – (309) 693-5463
BUREAU OF LAND – PEORIA – 7620 N. University St., Peoria, IL 61614 – (309) 693-5462 • CHAMPAIGN – 2125 South First Street, Champaign, IL 61820 – (217) 278-5800
SPRINGFIELD – 4500 S. Sixth Street Rd., Springfield, IL 62706 – (217) 786-6892 • COLLINSVILLE – 2009 Mall Street, Collinsville, IL 62234 – (618) 346-5120
MARION – 2309 W. Main St., Suite 116, Marion, IL 62959 – (618) 993-7200

- 3) The proposed class II groundwater classification is not approved. The current proposed soil and groundwater investigation must be conducted to define a groundwater classification for this site (approved November 19, 2007).
- 4) Through out this report the remedial applicant states that the groundwater exposure route is excluded due to the fact that the Village of Lyons has a groundwater ordinance, approved February 22, 2000 with no MOU required. In accordance with Section 742.300(b) no exposure route may be excluded from consideration until characterization of the extent and concentrations of the contaminants of concern at the site has been performed. The use of the groundwater ordinance in the NFR letter is acceptable; however the NFR letter also requires that the extent of groundwater contamination (especially potential off-site migration) be addressed, along with notification to all affected properties. Therefore the request to exclude the groundwater exposure route is not approved.
- 5) Section 5.3 of Appendix K (*BB&J Phase I Environmental Site Assessment*) discusses the groundwater flow detected in the shallow groundwater zone being in three different directions [*DAI attachments to CARC* (Appendix F) – westward towards existing quarry, *BB&J Phase II ESA: Commercial Development* (Appendix H) – east to southeast, and *BB&J Phase II ESA: Community Center* - radial flow in south-central portion of subject property to the north, west, and east (Appendix J)]. The proposed groundwater investigation (approved November 19, 2007) must be used, along with all on-site active shallow monitoring wells, to define the groundwater flow and gradient on the remediation site. This data should be compared to the groundwater flow and gradient determined for the bedrock positioned below the quarry fill material.
- 6) Section 5.3.1 – Exposure Routes of the *Comprehensive Site Investigation Report* states “groundwater contamination and residual soil contamination migrating for soil to groundwater will have attenuated below the Tier 1 groundwater ROs before encountering the closest down gradient point of human exposure, the Village of Lyons municipal boundary, according to TACO R12 and R26 modeling.” This modeling must be incorporated or revised using hydrogeologic information gathered from the approved November 19, 2007. sampling plan upon submittal of the *Remediation Objectives Report*.
- 7) Section 6.0 – Conclusion of the *Comprehensive Site Investigation Report* summarizes the proposed development plan. The Illinois EPA will not comment on the proposed engineered barriers, vapor barrier membrane, and passive vent systems in the commercial building area, recreational area, or community center until a *Remediation Objectives Report* is approved and *Remedial Action Plan* is submitted for approval.
- 8) Additional soil and groundwater sampling must be conducted in the area of the former Asphalt Plant and underground diesel pipe release (LUST incident 931154), in association with the approved November 19, 2007 sampling plan. Please provide a work plan incorporating this additional sampling.

The Illinois EPA requests not less than a fourteen (14) calendar day notification of all future site investigation and remedial activities in order to coordinate Illinois EPA oversight. This notification is particularly important when groundwater or soil samples are being collected. In addition, pursuant to 35 Illinois Administrative Code ("IAC") 740.415(d)(6), all quantitative analyses of samples collected on or after January 1, 2003, and utilizing any of the approved test methods identified in 35 IAC 186.180, shall be completed by an accredited laboratory in accordance with the requirements of 35 IAC 186. Quantitative analyses not utilizing an accredited laboratory in accordance with Part 186 shall be deemed invalid.

If you have any questions I may be contacted at the address above or (217) 524-7207.

Sincerely,



James L. Baldwin, LPG
Project Manager
Voluntary Site Remediation Unit
Remedial Project Management Section
Division of Remediation Management
Bureau of Land

JLB:jlb

cc: Kevin McCartney
Bradburne, Briller & Johnson, LLC
515 North State Street, Suite 2200
Chicago, IL 60610

Kevin Close
Municipal Consultant
3628 Prairie Avenue
Brookfield, IL 60513

**Illinois Environmental Protection Agency
Leaking Underground Storage Tank Program
Election to Proceed under the Site Remediation Program**

(This form applies only to UST owners or operators electing to conduct remediation under SRP.)

A. SITE IDENTIFICATION

IEMA Incident # (6- or 8-digit): _____ IEPA LPC# (10-digit): _____

Site Name: _____

Site Address (Not a P.O. Box): _____

City: _____ County: _____ ZIP Code: _____

B. CERTIFICATION

In accordance with Section 58.1(b) of the Environmental Protection Act (Act) (415 ILCS 5/58.1(b)), the following statement of election is made:

As the Owner and/or Operator of this tank system, I am electing to proceed with remediation in accordance with Title XVII of the Act (415 ILCS 5/58 et seq.) and 35 Illinois Administrative Code (35 Ill. Adm. Code) 740. I am aware of the following:

- *Completion of the Site Remediation Program (SRP) Application and Service Agreement Form (DRM-1) is required to enroll into the Program.*
- *I am subject to an advance partial payment for requested services in the amount of \$500. Alternatively, I may request that the Illinois Environmental Protection Agency (Illinois EPA) estimate the total costs to provide the requested services and assess an advance partial payment not to exceed \$5,000 or one-half of the total anticipated costs of the Illinois EPA, whichever is less. If the second option is selected, the Assessment of Advance Partial Payment for Anticipated Services Application (DRM-3) must be completed and attached to the application and service agreement.*
- *The advance partial payment is not refundable.*
- *I am subject to payments for costs incurred by the Illinois EPA for the performance of services under the SRP once the advance partial payment has been depleted. In addition, a No Further Remediation (NFR) letter assessment fee is required based on Illinois EPA-incurred costs up to a maximum of \$2,500.*
- *I am no longer eligible to seek reimbursement from the Underground Storage Tank Fund for costs incurred after the date the SRP Application and Service Agreement Form (DRM-1) is signed by the Remediation Applicant and accepted by the Illinois EPA.*
- *I am subject to the report requirements of 35 Ill. Adm. Code 740, which include, but are not limited to, submitting a Site Investigation Report, Remediation Objectives Report, Remedial Action Plan, and Remedial Action Completion Report.*
- *All plans and reports submitted for review and evaluation must be prepared by, or under the supervision of, an Illinois Licensed Professional Engineer, except that, for a site investigation report only, an Illinois Licensed Professional Geologist may make the certification. Any plan or report submitted to the Illinois EPA for review and evaluation must be accompanied by Form DRM-2.*

- An NFR Letter issued pursuant to Section 57.10 of the Act (Leaking UST Program) signifies that all statutory and regulatory corrective action requirements applicable to the occurrence have been complied with; whereas, an NFR Letter issued pursuant to Section 58.10 of the Act (SRP) signifies a release from further responsibilities under the Act in performing the approved remedial action and shall be considered prima facie evidence that the site does not constitute a threat to human health and the environment. The NFR Letter issued pursuant to Section 58.10 of the Act may not address all recognized environmental conditions or contaminants of concern subject to LUST regulations. Therefore, the content of the NFR Letter issued pursuant to Section 58.10 of the Act may reflect that fact.
- I am responsible for any environmental conditions or contaminants of concern associated with a Leaking UST release not addressed in the NFR Letter issued pursuant to Section 58.10 of the Act, including, but not limited to, off-site soil and/or groundwater contamination.
- If I am also the Remediation Applicant under the SRP, I further agree that any NFR Letter issued pursuant to Section 58.10 of the Act is voidable by the Illinois EPA if I fail to address such conditions or contaminants as required by law.

C. SIGNATURES

UST Owner

Company: _____
 Contact: _____
 Address: _____
 City: _____
 State: _____
 ZIP: _____
 Phone: _____
 Signature: _____
 Date: _____

UST Operator (if different than UST Owner)

Company: _____
 Contact: _____
 Address: _____
 City: _____
 State: _____
 ZIP: _____
 Phone: _____
 Signature: _____
 Date: _____

Submit this form to:

Illinois Environmental Protection Agency
 Bureau of Land -- #24
 Leaking Underground Storage Tank Section
 1021 North Grand Avenue East
 P.O. Box 19276
 Springfield, Illinois 62794-9276

ATTACHMENT D – BB&J FIELD PROCEDURES

ATTACHMENT A FIELD PROCEDURES

The sampling methods and protocols to be followed by BB&J personnel during the assessment activities are described in the following sections.

A.1 Sampling Equipment

The following is a list of sampling equipment that will be used during soil and ground-water sampling activities:

- A hydraulically-operated, Geoprobe[®] direct-push type soil sampling system (subcontractor equipment);
- A drill rig equipped with hollow-stem augers (HSAs) for soil boring advancement and collection of undisturbed soil samples from the subsurface;
- An air rotary drill rig equipped with 8-inch tri-cone bit for soil boring advancement and installation of monitoring wells;
- A photoionization detector (PID) equipped with a 10.2 electron-Volt lamp for field screening soil samples and health and safety monitoring;
- Clean, clear plastic “re-sealable” bags for collection of soil samples, for use in describing the sample and for field-screening purposes;
- Disposable nitrile or latex gloves (soil and ground-water sampling will be performed wearing clean nitrile or latex gloves to prevent possible cross-contamination);
- Phosphate-free soap, potable water, and de-ionized (or distilled) water for equipment decontamination;
- Laboratory-supplied containers (i.e., sample jars) for collection of soil and ground-water samples targeted for laboratory analyses; and,
- Laboratory supplied sample shipping containers (e.g., coolers).

A.2 Soil Probe / Boring Advancement Procedures

This section describes the various types of soil boring and soil probe techniques that were used, as well as specific soil sample collection procedures.

A.2.1 Soil Boring / Probe Advancement Procedures

Soil borings will be advanced utilizing a truck-mounted drill rig employing 8-inch or 10-inch outer diameter hollow-stem augers. Soil samples will be collected with a 2-inch diameter; 24-inch long split spoon barrel (SSB). The SSB will be driven into the subsurface using a 140-pound hammer dropped on a 30-inch free fall in accordance with American Society for Testing Materials (ASTM) D 1586-92. Upon retrieval, the SSB will be opened, and soil sample screening and sample collection procedures will be initiated.

The Geoprobe® is a direct-push type sampling machine used to collect soil and/or ground-water samples. The machine advances a soil probe by means of a hydraulic hammer that drives the sampler vertically into the ground. Soil samples will be collected using a 1.5-inch diameter, 48-inch long sampling tube with dedicated, disposable acetate liners. Use of a releasable plunger inside the tube allows the sampler to be advanced to the desired depth and a discrete sample to be collected.

A.2.2 Soil Screening and Sample Collection Procedures

Each soil sample (i.e., 2-foot interval) or either the SSB will be opened or the acetate liner will be cut open, as applicable, and placed in re-sealable plastic bags. One soil bag will be placed in a cooler supplied with ice for possible submittal to the analytical laboratory. The other soil bag will be kept in a warm environment (approximately 70 degrees Fahrenheit or greater for a minimum of 10 minutes in an effort to promote volatilization) for field-screening with a PID and soil classification. The PID will be calibrated in accordance with the manufacturer's directions and results recorded in the field book. After a minimum of 10 minutes within a warm environment, the probe on the PID will be inserted into the soil bag and a sample of headspace air will be withdrawn. The maximum PID reading will be recorded in the field book and/or on the soil boring log. Readings are recorded in parts per million referencing the calibration gas used.

Based on the field screening and observation, the field personnel will select a "worst case" soil sample from each location generally based on the following criteria:

- The sample that exhibited the highest PID screening results; and/or,
- Appeared to exhibit the most prominent staining; and/or,
- Exhibited the strongest potential chemical odor (or, in the absence of an apparent chemical odor, the strongest anomalous odor, as noted).

The selected sample's corresponding soil bag contained in the cooler with ice will be packed in the appropriate laboratory-supplied containers for shipment to the laboratory for chemical analysis.

The soil contained in the soil bag used for field screening also will be used for classification. The soil will be visually classified by the on-site field personnel in accordance with ASTM D 2488-93 and described on the appropriate field sampling form.

A.2.3 Borehole/Probehole Abandonment

Following advancement of the boreholes/probeholes, the boreholes will be abandoned by backfilling them with bentonite chips or soil from the probe/boring to the original surface.

A.3 Ground-Water Monitoring Well Installation, Development, and Sampling Procedures

Once soil borings are advanced to the appropriate depths (determined by the on-site field personnel), the overburden ground-water monitoring well(s) will be installed in select boreholes. The appropriate depth will be determined by evaluating the depth to ground water encountered in the borehole/probehole at the time of drilling and advancing the soil boring/probe to the

appropriate depth. The actual depth may be more or less depending on one or more combinations of the following:

- Subsurface soil conditions encountered during drilling;
- Anticipated seasonal fluctuations in the ground-water table; and/or,
- Field screening results from select soil samples during drilling.

A.3.1 Type II and III Monitoring Well Construction Details

Type II monitoring wells will be constructed of 2-inch diameter polyvinyl chloride (PVC) slotted screens (approximately 10-foot sections), with 0.10-inch slots, and, attached to solid 2-inch diameter risers. The PVC risers will be measured and attached to the screens with flush-threaded joints. The monitoring wells will then be inserted manually into the HSA and placed at the bottom of the borehole. Filter sand will be hand-poured through the HSA as the drill rig operator slowly retrieves the augers. Completion of the monitoring well will include extending the filter pack sand approximately 2 feet above the top of the screen. The remaining annular space will be filled with chipped bentonite. A flush-mounted protective well cover will then be installed around each well using a grout mixture of Portland Type I cement, potable water, and bentonite.

For locations where Type III bedrock wells are installed, soil borings for the bedrock monitoring wells will be advanced through the unconsolidated deposits using hollow-stem auger or rotary methods. Upon encountering bedrock refusal, an 8-inch tri-cone bit will advance the borehole into the first five feet of bedrock. A 5-inch inner diameter (ID) polyvinyl chloride (PVC) conductor casing or steel casing will then be placed in the borehole and the annular space will be grouted, to minimize the potential for impacted groundwater to migrate down the borehole. Centralizers may be used to center the outer casing in the boring.

The monitoring wells will be cored to a depth of approximately 15 feet below this depth (for a total well depth of 20 feet below the bedrock-soil interface) using the NQ2 wireline coring method (i.e., 2.98-inch outside diameter hole and 1.88-inch diameter rock core) with potable water as the drilling fluid. Rock will be collected in a 10-foot long core barrel assembly, the inner barrel of which will be retrieved by a wireline cable. The rock cores will be transferred directly from the core barrel to a rock core box where it will be measured and described. Information included in the description will include: recovery lengths and percentages; rock quality designator (RQD); physical characteristics (e.g. hardness, mechanical breaks, etc.); and geologic characteristics (e.g. formation description, weathering, joint/fracture orientation, etc.). The rock core will then be stored in rock core boxes and each box will be labeled, marked, and photographed (wet and dry) for future reference. The bedrock monitoring well will be completed as an open hole in rock beneath the bottom of the outer casing

A.3.2 Monitoring Well Development Techniques

Prior to well development, the new monitoring wells will be gauged using an electronic interface probe to measure the depth to ground water, and the amount of water within the well will then be calculated. The electronic interface probe will be also used to check for, and measure the thickness of, potential non-aqueous phase liquids [(NAPLs) i.e., free product], especially product floating on the ground-water table. The overburden ground-water monitoring wells will be developed manually using a surge-and-purge technique. Development will be conducted to bring representative formation water into the zone of interest and to reduce turbidity in each monitoring

well. Development will continue until approximately three to five well casing volumes of water has been removed. If the monitoring well is a “low-yield well” (i.e., incapable of yielding at least three well casing volumes of water over an 8-hour period), the well will be evacuated to dryness one to five times over an 8-hour period. Monitoring well development will be performed using a Teflon bailer, PVC bailer, or a pump. Furthermore, once the monitoring well is developed, the monitoring well will be left for 7 days prior to the time of sampling.

A.3.3 Monitoring Well Sampling Procedures

Ground-water samples will be collected using dedicated, disposable polyethylene bailers, with single-ball check valves and clean polypropylene rope. Due to the depth of the proposed bedrock monitoring wells, a low-flow pump may be used to collect ground-water at depth. To minimize volatilization of potential VOCs in the sample, ground-water samples targeted for analysis of VOCs will be collected prior to samples targeted for other analytical parameters. The bailers will be lowered gently into the monitoring well when obtaining the sample, to minimize potential volatilization of VOCs. Upon collection, the ground-water samples will be placed into pre-cleaned, laboratory-supplied containers (through bottom discharge devices) with the proper preservative(s). Sampling will be performed wearing clean, disposable latex gloves, one pair per sampling location. After sampling, the bailer, attached line, and gloves will be placed into a designated container for disposal.

A.4.1 Equipment Decontamination

Equipment involved in field sampling activities will be decontaminated prior to drilling, sampling, or leaving the Subject Property. Decontamination of large equipment will be conducted by steam cleaning, in a designated area. During soil sampling, decontamination of the sampling equipment will be conducted between each sample interval and include the following:

- The removal of visible sediment using a brush and non-phosphate soap and potable water mixture; and,
- Potable water rinse.

Between individual boreholes, equipment involved in sampling (e.g., augers, split barrel samplers, and drill rods) will be steam-cleaned in the designated decontamination area. The ground-water monitoring well casings and screens will be also steam-cleaned prior to use.

The electronic interface probe will be decontaminated using the following steps:

- Rinse with a non-phosphate soap and potable water mixture;
- Allow to air dry; and,
- Rinse with potable water.

A.4.2 Liquids

Liquids generated during field activities may include: (1) development and purge water from the ground-water monitoring wells; and, (2) decontamination water. Representative samples of the liquids will be collected from randomly selected drums and submitted for the waste characterization analyses required for the selected disposal option.

A.4.3 Staging

All drums will be placed in a predetermined location. If possible, the drums will be stored in an area where they would remain dry. Each drum will be initially labeled using an indelible marker on the top of the drum. Upon receipt of the laboratory analytical data, with regards to disposal, final labeling of drums will be conducted to include the following information:

- Site name and drum log number;
- Material description;
- Generator's name and address;
- Generator's identification number;
- Date generated; and,
- Manifest number (if known).

A.5 Quality Assurance/Quality Control (QA/QC) Procedures

The following sections outline QA/QC protocol and procedures that will be implemented as part of this project.

A.5.1 QA/QC Samples

QA/QC samples will be collected to assess the accuracy and precision of the laboratory data resulting from the sampling program. QA/QC samples collected for this project will include a trip blank and an equipment rinsate blank. A brief description of the QA/QC samples is as follows:

Trip Blanks

Trip blank samples consisting of de-ionized water, provided by the analytical laboratory, will accompany the cooler(s) containing the samples from the laboratory, to the field and back to the laboratory. The trip blanks will be used to assess potential cross-contamination from the cooler and handling practices, in addition to assessing potential cross-contamination between samples. Trip blanks will be analyzed for VOCs only. One trip blank will be analyzed per cooler.

Equipment Rinsate Blanks

Equipment rinsate blanks will be collected to evaluate potential cross-contamination of samples due to field decontamination procedures. The equipment rinsate blanks will be collected by pouring de-ionized water over the decontaminated sampling equipment (e.g., dedicated tubing, HDPE bailer) into an appropriate laboratory container. The equipment rinsate blanks will be shipped with the samples to the analytical laboratory for analysis. A minimum of two equipment rinsate blanks (one for soil sampling and one for ground-water sampling) will be collected and analyzed.

A.5.2 Sample Containers and Preservation

Sample containers prepared by a commercial vendor will be provided by the laboratory. Preservation techniques and holding times for COCs will be maintained as outlined in USEPA Publication No. SW-846.

A.5.3 Sample Identification, Packing and Shipping

Sample labels will be affixed to each sample container. The following information will be included on the sample label:

- Sample identification
- BB&J project name and number
- Sample date and time
- Preservative (if any)
- Requested analyses
- Samplers initials

Samples will be packed in a cooler(s) with containerized ice sealed in two re-sealable plastic bags in a manner that minimizes the potential for breakage and excessive movement. The cooler(s) will be transported via overnight courier to the laboratory. Chain-of-custody documentation outlined as follows will accompany each shipment of samples to the laboratory.

A.5.4 Chain-of-Custody Procedures

Formal chain-of-custody begins when the pre-cleaned sample containers arrive to the sampler in coolers from the laboratory. At the time of sample collection, the labeled samples will be placed into an iced cooler and a line item chain-of-custody form will be completed by the sampler. Chain-of-custody allows the samples to be traced from the time of collection to receipt in the laboratory. Upon completion of all line items, the sampler will sign, date, list the time, and confirm the completeness of all descriptive information contained on the form. One copy of the completed chain-of-custody will then be retained by the sampler, with the others being returned with the samples. A final copy of the chain-of-custody indicating receipt by the laboratory will be returned with the laboratory analytical data reports. Each individual who subsequently assumed responsibility for the samples will sign the chain-of-custody record. The following items are included on the chain-of-custody:

- Sample Identification
- Date and time of sample collection
- Sample type (i.e., liquid/solid/soil/etc.)
- Sample location
- Number, size and type of containers
- Analytical parameters requested
- Preservative (if any)
- Dates/time of relinquishment and receipt
- Signature of all in possession of samples

A.5.5 Record Keeping

BB&J field personnel will document the field activities (with corresponding times) and pertinent information in a dedicated project field logbook. Information recorded will include names and companies of on-site personnel (BB&J, client, subcontractors, etc); weather conditions; purpose of activities; and, details of fieldwork (e.g., soil conditions, sampling depths, etc.). In addition, certain information obtained in the field will be recorded on BB&J field forms (e.g., soil boring logs, ground-water sample forms, rock core logs, etc.). Field book(s) and forms will be kept on-file in BB&J's project files in Chicago.

ATTACHMENT E – SOIL BORING LOGS

Field Boring Log

Page 1 of 1

Site File No. 10415 - 0259004 County Cook

Boring No. SIR GP-3

Monitor Well No. N/A

Site File Name Lyons, IL

Surface Elev. N/A

Completion Depth 12 feet

Fed ID No. _____

Auger Depth N/A

Rotary Depth N/A

Quadrangle Berwyn, IL

Date Started 11/27/2007

Date Finished 11/27/2007

UTM (or State Plane) Coordinates _____




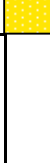
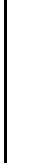
**NGVD: National Geodetic Vertical Datum

N. (x) _____ E.(y) _____

Latitude 41 ° 48 ' 49 " Longitude 87 ° 49 ' 30 "

Boring Location See Figure 1

Drilling Equipment Geoprobe

Latitude 41 ° 48 ' 49 " Longitude 87 ° 49 ' 30 "			SAMPLES						BB&J Personnel	
Boring Location See Figure 1									G - Mike Couvreur	
Drilling EquipmentGeoprobe									G- Amber Cicotte	
									D- Dan, CS Drilling	
									H- Justin, CS Drilling	
Depth in Feet	DESCRIPTION OF MATERIALS	Graphic Log	Depth in Feet	SAMPLE ID	SAMPLE TYPE	SAMPLE RECOVERY (IN)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA OR PID READINGS (PPM)	REMARKS
..... 1	No Recovery	 1	A	G	0			0.0	
..... 2			..... 2						
..... 3	Loose light gray sandy GRAVEL (GP); dry	 3	B	G	24			1.0	
..... 4			..... 4						
..... 5	Loose gray sandy CLAY (SC), with gravel; dry	 5	C	G	24			0.7	
..... 6			..... 6						
..... 7	Loose gray sandy CLAY (SC), with gravel; dry	 7	D	G	24			0.7	
..... 8			..... 8						
..... 9	Stiff gray CLAY (GC), with gravel; dry	 9	E	G	24			0.7	
..... 10			..... 10						
..... 11	Loose black silty SAND (SM); dry	 11	F	G	24			1.0	BB&J submitted soil sample collected at 10-12 feet bgs for laboratory analyses.
..... 12			..... 12						
..... 13	Terminated probe at 12 feet bgs.	 13							
..... 14			..... 14						
..... 15			..... 15						
..... 16			..... 16						
..... 17			..... 17						
..... 18			..... 18						
..... 19			..... 19						
..... 20			..... 20						


NOTES:

NA: Not Applicable
No: Number
NM: Not Measured
Elev: Elevation

G: Grab
C: Composite
bgs: below ground surface
Fed: Federal

PTR: Penetrometer
ppm: parts per million
D: Dry
ID: Identification

P: Damp
M: Moist
W: Wet
H: Helper

S: Saturated
OV: Organic Vapors
 Ground water encountered during drilling.

Field Boring Log

Page 1 of 1

Site File No. 10415 - 0259004 County Cook Boring No. SIR GP-4 Monitor Well No. N/A
 Site File Name Lyons, IL Surface Elev. N/A Completion Depth 12 feet
 Fed ID No. Auger Depth N/A Rotary Depth N/A
 Quadrangle Berwyn, IL Date Started 11/27/2007 Date Finished 11/27/2007

UTM (or State Plane) Coordinates

**NGVD: National Geodetic Vertical Datum

N. (x) E.(y)
 Latitude 41 ° 48 ' 50 " Longitude 87 ° 49 ' 28 "

Boring Location See Figure 1

Drilling Equipment Geoprobe

Depth in Feet	DESCRIPTION OF MATERIALS	Graphic Log	Depth in Feet	SAMPLES					OVA OR PID READINGS (PPM)	BB&J Personnel	
				SAMPLE ID	SAMPLE TYPE	SAMPLE RECOVERY (IN)	PENETROMETER	N VALUES (BLOW COUNTS)		REMARKS	
1	No Recovery		1	A	G	12			1.0		
2	Loose dark gray SAND (SP); dry		2								
3	Loose light gray GRAVEL (GP); dry		3	B	G	24			15.2	BB&J submitted soil sample collected at 2-4 feet bgs for laboratory analyses.	
4	Stiff dark gray CLAY (CL); damp		4								
5	Medium dense light gray SAND (SW); dry		5	C	G	18			1.4	Slight petroleum odor from 2 - 4.5 feet bgs.	
6	No Recovery		6								
7	Loose light gray GRAVEL (GP); damp		7	D	G	24			1.2		
8			8								
9	Loose dark gray SAND (SW); damp		9	E	G	24			0.9		
10			10								
11	Semi-stiff light gray clayey SAND (SC); damp		11	F	G	24			14.4		
12	Semi-stiff dark gray SAND (SW); damp		12								
13	Terminated probe at 12 feet bgs.		13								
14			14								
15			15								
16			16								
17			17								
18			18								
19			19								
20			20								


NOTES:

NA: Not Applicable
 No: Number
 NM: Not Measured
 Elev: Elevation

G: Grab
 C: Composite
 bgs: below ground surface
 Fed: Federal

PTR: Penetrometer
 ppm: parts per million
 D: Dry
 ID: Identification

P: Damp
 M: Moist
 W: Wet
 H: Helper

S: Saturated
 OV: Organic Vapors
 Ground water encountered during drilling.

Field Boring Log

Page 1 of 1

Site File No. 10415 - 0259004 County Cook

Boring No. SIR GP-5

Monitor Well No. N/A

Site File Name Lyons, IL

Surface Elev. N/A

Completion Depth 12 feet

Fed ID No. _____

Auger Depth N/A

Rotary Depth N/A

Quadrangle Berwyn, IL

Date Started 11/27/2007

Date Finished 11/27/2007

UTM (or State Plane) Coordinates _____








**NGVD: National Geodetic Vertical Datum

N. (x) _____ E.(y) _____

Latitude 41 ° 48 ' 50 " Longitude 87 ° 49 ' 26 "

Boring Location See Figure 1

Drilling Equipment Geoprobe

Latitude 41 ° 48 ' 50 " Longitude 87 ° 49 ' 26 "		SAMPLES						BB&J Personnel		
Boring Location See Figure 1								G - Mike Couvreur		
Drilling Equipment Geoprobe								G- Amber Cicotte		
								D- Dan, CS Drilling		
								H- Justin, CS Drilling		
Depth in Feet	DESCRIPTION OF MATERIALS	Graphic Log	Depth in Feet	SAMPLE ID	SAMPLE TYPE	SAMPLE RECOVERY (IN)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA OR PID READINGS (PPM)	REMARKS
..... 1	No Recovery	 1	A	G	12			0.6	Slight petroleum odor from 3-4.5 feet bgs.
..... 2	Soft dark gray SAND (SP), with gravel; dry		..... 2						
..... 3			B	G	24			1.0		
..... 4								 3	
..... 5			Loose light gray GRAVEL (GP); dry	 5	C	G	18				2.1
..... 6	No Recovery		..... 6						
..... 7	Loose light gray GRAVEL (GP); dry	 7	D	G	24			1.2	
..... 8			..... 8						
..... 9	Loose dark gray silty SAND (SM); damp	 9	E	G	24			21.1	BB&J submitted soil sample collected at 8-10 feet bgs for laboratory analyses.
..... 10	Semi-stiff dary gray CLAY (CL); damp		..... 10						
..... 11	Loose light gray GRAVEL (GP); dry	 11	F	G	24			5.3	Wood material from 11-12 feet bgs.
..... 12	Loose dark brown clayey SAND (SC); damp		..... 12						
..... 13	Terminated probe at 12 feet bgs.	 13							
..... 14			..... 14						
..... 15			..... 15						
..... 16			..... 16						
..... 17			..... 17						
..... 18			..... 18						
..... 19			..... 19						
..... 20			..... 20						


NOTES:

NA: Not Applicable
No: Number
NM: Not Measured
Elev: Elevation

G: Grab
C: Composite
bgs: below ground surface
Fed: Federal

PTR: Penetrometer
ppm: parts per million
D: Dry
ID: Identification

P: Damp
M: Moist
W: Wet
H: Helper

S: Saturated
OV: Organic Vapors
 Ground water encountered during drilling.

Field Boring Log

Page 1 of 1

Site File No. 10415 - 0259004 County Cook Boring No. SIR GP-7 Monitor Well No. N/A
 Site File Name Lyons, IL Surface Elev. N/A Completion Depth 12 feet
 Fed ID No. Auger Depth N/A Rotary Depth N/A
 Quadrangle Berwyn, IL Date Started 11/20/2007 Date Finished 11/20/2007

UTM (or State Plane) Coordinates

**NGVD: National Geodetic Vertical Datum

N. (x) E.(y)
 Latitude 41 ° 48 ' 50 " Longitude 87 ° 49 ' 26 "

Boring Location See Figure 1

Drilling Equipment Geoprobe

Latitude 41 ° 48 ' 50 " Longitude 87 ° 49 ' 26 "				SAMPLES						BB&J Personnel	
Boring Location See Figure 1										G - Jacob McNamara	
Drilling EquipmentGeoprobe										G- Amber Cicotte	
										D- Logan, CS Drilling	
										H- Justin, CS Drilling	
Depth in Feet	DESCRIPTION OF MATERIALS	Graphic Log	Depth in Feet	SAMPLE ID	SAMPLE TYPE	SAMPLE RECOVERY (IN)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA OR PID READINGS (PPM)	REMARKS	
1	No Recovery		1	A	G	0			0.0		
2			2								
3	Loose light brown silty CLAY (CL); dry		3	B	G	24			0.0		
4	Loose white pulverized GRAVEL (GP); dry		4								
5	Loose brown sandy CLAY (SC), with gravel; dry		5	C	G	12			0.0		
6	No Recovery		6								
7			7	D	G	0		0.0			
8	8										
9	Semi-stiff brown sandy CLAY (SC); damp		9	E	G	24			0.0	BB&J submitted soil sample collected at 8-10 feet bgs for laboratory analyses.	
10			10								
11	Loose brown CLAY (CL), with gravel; dry		11	F	G	24			0.0		
12			12								
13	Terminated probe at 12 feet bgs.		13								
14			14								
15			15								
16			16								
17			17								
18			18								
19			19								
20			20								


NOTES:

NA: Not Applicable
 No: Number
 NM: Not Measured
 Elev: Elevation

G: Grab
 C: Composite
 bgs: below ground surface
 Fed: Federal

PTR: Penetrometer
 ppm: parts per million
 D: Dry
 ID: Identification

P: Damp
 M: Moist
 W: Wet
 H: Helper

S: Saturated
 OV: Organic Vapors
 Ground water encountered during drilling.

Field Boring Log

Page 1 of 1

Site File No. 10415 - 0259004 County Cook

Boring No. SIR GP-8

Monitor Well No. N/A

Site File Name Lyons, IL

Surface Elev. N/A

Completion Depth 12 feet

Fed ID No. _____

Auger Depth N/A

Rotary Depth N/A

Quadrangle Berwyn, IL

Date Started 11/20/2007

Date Finished 11/20/2007

UTM (or State Plane) Coordinates _____

**NGVD: National Geodetic Vertical Datum

N. (x) _____ E.(y) _____

Latitude 41 ° 48 ' 50 " Longitude 87 ° 49 ' 25 "

Boring Location See Figure 1

Drilling Equipment Geoprobe

Latitude	41 ° 48 ' 50 "	Longitude	87 ° 49 ' 25 "	SAMPLES						BB&J Personnel	
Boring Location	See Figure 1									G - Jacob McNamara	
Drilling Equipment	Geoprobe									G- Amber Cicotte	
										D- Logan, CS Drilling	
										H- Justin, CS Drilling	
Depth in Feet	DESCRIPTION OF MATERIALS	Graphic Log	Depth in Feet	SAMPLE ID	SAMPLE TYPE	SAMPLE RECOVERY (IN)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA OR PID READINGS (PPM)	REMARKS	
1	Loose light brown silty CLAY (CL); dry		1	A	G	24			5.7	BB&J submitted soil sample collected at 0-2 feet bgs for laboratory analyses.	
2			2								
3	Loose brown SAND (SP); moist		3	B	G	24			1.2	Slight petroleum odor at 3 feet bgs.	
4	Semi-stiff white CLAY (CL); damp		4								
5	Loose black clayey GRAVEL (GC); moist		5	C	G	12			3.6		
6	No Recovery		6								
7	Semi-stiff white CLAY (CL); damp		7	D	G	24			1.5	White clay had the appearance of wet cement.	
8	Loose black clayey GRAVEL (GC); moist		8								
9			9	E	G	24		0.0			
10			10								
11			11	F	G	24		1.0			
12			12								
13	Terminated probe at 12 feet bgs.		13								
14			14								
15			15								
16			16								
17			17								
18			18								
19			19								
20			20								

NOTES:

NA: Not Applicable
No: Number
NM: Not Measured
Elev: Elevation

G: Grab
C: Composite
bgs: below ground surface
Fed: Federal

PTR: Penetrometer
ppm: parts per million
D: Dry
ID: Identification

P: Damp
M: Moist
W: Wet
H: Helper

S: Saturated
OV: Organic Vapors
 Ground water encountered during drilling.

Field Boring Log

Page 1 of 1

Site File No. 10415 - 0259004 County Cook

Boring No. SIR GP-9

Monitor Well No. N/A

Site File Name Lyons, IL

Surface Elev. N/A

Completion Depth 12 feet

Fed ID No. _____

Auger Depth N/A

Rotary Depth N/A

Quadrangle Berwyn, IL

Date Started 11/21/2007

Date Finished 11/21/2007

UTM (or State Plane) Coordinates




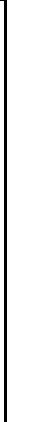
**NGVD: National Geodetic Vertical Datum

N. (x) _____ E.(y) _____

Latitude 41 ° 48 ' 50 " Longitude 87 ° 49 ' 25 "

Boring Location See Figure 1

Drilling Equipment Geoprobe

Latitude 41 ° 48 ' 50 " Longitude 87 ° 49 ' 25 "			SAMPLES						BB&J Personnel		
Boring Location See Figure 1									G - Jacob McNamara		
Drilling EquipmentGeoprobe									G- Amber Cicotte		
									D- Logan, CS Drilling		
									H- Justin, CS Drilling		
Depth in Feet	DESCRIPTION OF MATERIALS	Graphic Log	Depth in Feet	SAMPLE ID	SAMPLE TYPE	SAMPLE RECOVERY (IN)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA OR PID READINGS (PPM)	REMARKS	
..... 1	Stiff brown CLAY (CL), with gravel; moist	 1	A	G	24			0.4	BB&J submitted soil sample collected at 0-2 feet bgs for laboratory analyses.	
..... 2			..... 2							
..... 3			Pulverized rock and gravel	 3	B	G	24			0.2
..... 4	..... 4									
..... 5	Stiff light brown silty CLAY (CL); damp			 5	C	G	24		0.0	
..... 6			..... 6							
..... 7			Terminated probe at 12 feet bgs.	 7	D	G	24		0.0	
..... 8	..... 8									
..... 9				 9	E	G	24		0.0	
..... 10					..... 10					
..... 11						 11	F	G	24			0.0
..... 12	..... 12									
..... 13			..... 13							
..... 14			..... 14							
..... 15			..... 15							
..... 16			..... 16							
..... 17			..... 17							
..... 18			..... 18							
..... 19			..... 19							
..... 20			..... 20							


NOTES:

NA: Not Applicable
No: Number
NM: Not Measured
Elev: Elevation

G: Grab
C: Composite
bgs: below ground surface
Fed: Federal

PTR: Penetrometer
ppm: parts per million
D: Dry
ID: Identification

P: Damp
M: Moist
W: Wet
H: Helper

S: Saturated
OV: Organic Vapors
 Ground water encountered during drilling.

Field Boring Log

Page 1 of 1

Site File No. 10415 - 0259004 County Cook

Boring No. SIR GP-10

Monitor Well No. N/A

Site File Name Lyons, IL

Surface Elev. N/A

Completion Depth 12 feet

Fed ID No.

Auger Depth N/A

Rotary Depth N/A

Quadrangle

Date Started 11/21/2007

Date Finished 11/21/2007

UTM (or State Plane) Coordinates

**NGVD: National Geodetic Vertical Datum

N. (x) E.(y)

Latitude 41 ° 48 ' 49 " Longitude 87 ° 49 ' 31 "

Boring Location See Figure 1

Drilling Equipment Geoprobe

Latitude	41° 48' 49"	Longitude	87° 49' 31"	SAMPLES						BB&J Personnel	
Boring Location	See Figure 1									G - Jacob McNamara	
Drilling Equipment	Geoprobe									H - Justin, CS Drilling	
Depth in Feet	DESCRIPTION OF MATERIALS	Graphic Log	Depth in Feet	SAMPLE ID	SAMPLE TYPE	SAMPLE RECOVERY (IN)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA OR PID READINGS (PPM)	REMARKS	
..... 1	Soft light brown sandy CLAY (SC), with gravel; moist	 1	A	G	24			0.1	Slight petroleum odor from 7-12 feet bgs.	
..... 2			..... 2							
..... 3	Semi-stiff gray sandy CLAY (SC), with gravel; moist	 3	B	G	24			0.5		
..... 4			..... 4							
..... 5			..... 5							
..... 6	No Recovery	 6	C	G	12			1.0		
..... 7	Soft brown CLAY (CL); damp		..... 7							
..... 8			..... 8							
..... 9	Semi-stiff black GRAVEL (GP); damp	 9	E	G	24			49.7	BB&J submitted soil sample collected at 8-10 feet bgs for laboratory analyses.	
..... 10			..... 10							
..... 11	Soft black and brown CLAY (CL); damp	 11	F	G	24			9.2		
..... 12			..... 12							
..... 13	Terminated probe at 12 feet bgs.	 13								
..... 14			..... 14							
..... 15			..... 15							
..... 16			..... 16							
..... 17			..... 17							
..... 18			..... 18							
..... 19			..... 19							
..... 20			..... 20							

NOTES:

NA: Not Applicable
No: Number
NM: Not Measured
Elev: Elevation

G: Grab
C: Composite
bgs: below ground surface
Fed: Federal

PTR: Penetrometer
ppm: parts per million
D: Dry
ID: Identification

P: Damp
M: Moist
W: Wet
H: Helper

S: Saturated
OV: Organic Vapors
Ground water encountered during drilling.

Field Boring Log

Page 1 of 1

Site File No. 10415 - 0259004 County Cook

Boring No. SIR GP-11

Monitor Well No. N/A

Site File Name Lyons, IL

Surface Elev. N/A

Completion Depth 12 feet

Fed ID No. 

Auger Depth N/A

Rotary Depth N/A

Quadrangle 

Date Started 11/21/2007

Date Finished 11/21/2007

UTM (or State Plane)


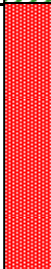


**NGVD: National Geodetic Vertical Datum

N. (x) E.(y)

Latitude 41 ° 48 ' 48 " Longitude 87 ° 49 ' 31 "

Boring Location See Figure 1

Drilling Equipment Geoprobe

Latitude 41 ° 48 ' 48 " Longitude 87 ° 49 ' 31 "				SAMPLES						BB&J Personnel		
Boring Location See Figure 1										G - Jacob McNamara		
Drilling EquipmentGeoprobe										G- Amber Cicotte		
										D- Logan, CS Drilling		
										H- Justin, CS Drilling		
Depth in Feet	DESCRIPTION OF MATERIALS	Graphic Log	Depth in Feet	SAMPLE ID	SAMPLE TYPE	SAMPLE RECOVERY (IN)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA OR PID READINGS (PPM)	REMARKS		
..... 1	Semi-stiff brown silty CLAY (CL), with gravel; damp		..... 1	A	G	24			0.0	Slight petroleum odor from 7 - 12 feet bgs.	
..... 2			..... 2								
..... 3	Loose brown SAND (SP), with gravel; dry		..... 3	B	G	24			0.0		
..... 4			..... 4								
..... 5			..... 5	C	G	24			0.0		
..... 6			..... 6								
..... 7	Semi-stiff black GRAVEL (GP); damp		..... 7	D	G	24			6.3		
..... 8			..... 8								
..... 9			..... 9	E	G	24			0.4		
..... 10			..... 10								
..... 11			..... 11	F	G	24			52.5		
..... 12			..... 12								
..... 13	Terminated probe at 12 feet bgs.		..... 13								
..... 14			..... 14								
..... 15			..... 15								
..... 16			..... 16								
..... 17			..... 17								
..... 18			..... 18								
..... 19			..... 19								
..... 20			..... 20								


NOTES:

NA: Not Applicable
No: Number
NM: Not Measured
Elev: Elevation

G: Grab
C: Composite
bgs: below ground surface
Fed: Federal

PTR: Penetrometer
ppm: parts per million
D: Dry
ID: Identification

P: Damp
M: Moist
W: Wet
H: Helper

S: Saturated
OV: Organic Vapors
 Ground water encountered during drilling.

Field Boring Log

Page 1 of 1

Site File No. 10415 - 0259004 County Cook

Boring No. SIR GP-12

Monitor Well No. N/A

Site File Name Lyons, IL

Surface Elev. N/A

Completion Depth 12 feet

Fed ID No. _____

Auger Depth N/A

Rotary Depth N/A

Quadrangle Berwyn, IL

Date Started 11/20/2007

Date Finished 11/20/2007

UTM (or State Plane) Coordinates _____





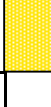
**NGVD: National Geodetic Vertical Datum

N. (x) _____ E.(y) _____

Latitude 41 ° 48 ' 49 " Longitude 87 ° 49 ' 29 "

Boring Location See Figure 1

Drilling Equipment Geoprobe

Latitude 41 ° 48 ' 49 " Longitude 87 ° 49 ' 29 "				SAMPLES						BB&J Personnel		
Boring Location See Figure 1										G - Jacob McNamara		
Drilling EquipmentGeoprobe										G- Amber Cicotte		
										D- Logan, CS Drilling		
										H- Justin, CS Drilling		
Depth in Feet	DESCRIPTION OF MATERIALS			Graphic Log	Depth in Feet	SAMPLE ID	SAMPLE TYPE	SAMPLE RECOVERY (IN)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA OR PID READINGS (PPM)	REMARKS
..... 1	Semi-stiff brown CLAY (CL); dry			 1	A	G	24			0.0	BB&J submitted soil sample collected at 0-2 feet bgs for laboratory analyses.
..... 2					..... 2						
..... 3	Semi-stiff brown CLAY (CL); damp			 3	B	G	24			0.0	
..... 4	Semi-stiff black sandy CLAY (SC), with gravel; dry				..... 4						
..... 5			 5	C	G	24	0.0				
..... 6				..... 6							
..... 7	Loose gray GRAVEL (GP); dry			 7	D	G	24		0.0		
..... 8					..... 8						
..... 9	Loose brown CLAY (CL), with gravel; dry			 9	E	G	24		0.0		
..... 10					..... 10						
..... 11	Soft brown sandy CLAY (SC), with gravel; damp			 11	F	G	24		0.0		
..... 12					..... 12						
..... 13	Terminated probe at 12 feet bgs.			 13							
..... 14					..... 14						
..... 15					..... 15						
..... 16					..... 16						
..... 17					..... 17						
..... 18					..... 18						
..... 19					..... 19						
..... 20					..... 20						


NOTES:

NA: Not Applicable
No: Number
NM: Not Measured
Elev: Elevation

G: Grab
C: Composite
bgs: below ground surface
Fed: Federal

PTR: Penetrometer
ppm: parts per million
D: Dry
ID: Identification

P: Damp
M: Moist
W: Wet
H: Helper

S: Saturated
OV: Organic Vapors
 Ground water encountered during drilling.

Field Boring Log

Page 1 of 1

Site File No. 10415 - 0259004 County Cook Boring No. SIR GP-13 Monitor Well No. N/A
 Site File Name Lyons, IL Surface Elev. N/A Completion Depth 12 feet
 Fed ID No. Auger Depth N/A Rotary Depth N/A
 Quadrangle Berwyn, IL Date Started 11/20/2007 Date Finished 11/20/2007







UTM (or State Plane) Coordinates

**NGVD: National Geodetic Vertical Datum


N. (x) E.(y)
 Latitude 41 ° 48 ' 47 " Longitude 87 ° 49 ' 29 "

Boring Location See Figure 1

Drilling Equipment Geoprobe

Latitude 41 ° 48 ' 47 " Longitude 87 ° 49 ' 29 "				SAMPLES						BB&J Personnel	
Boring Location See Figure 1										G - Jacob McNamara	
Drilling EquipmentGeoprobe										G- Amber Cicotte	
										D- Logan, CS Drilling	
										H- Justin, CS Drilling	
Depth in Feet	DESCRIPTION OF MATERIALS	Graphic Log	Depth in Feet	SAMPLE ID	SAMPLE TYPE	SAMPLE RECOVERY (IN)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA OR PID READINGS (PPM)	REMARKS	
..... 1	Loose gray pulverized GRAVEL (GP); dry		..... 1	A	G	24			0.0	Slight petroleum odor at 3 feet bgs.	
..... 2			..... 2								
..... 3	Loose dark brown CLAY (CL); dry		..... 3	B	G	24			0.2	BB&J submitted soil sample collected at 2-4 feet bgs for laboratory analyses.	
..... 4			..... 4								
..... 5	Loose light gray CLAY (CL), with gravel; moist		..... 5	C	G	24			0.2		
..... 6			..... 6								
..... 7			..... 7	D	G	24		0.0			
..... 8			..... 8								
..... 9	Semi-stiff brown CLAY (CL); moist		..... 9	E	G	24			0.0		
..... 10			..... 10								
..... 11	Loose black CLAY (CL); moist		..... 11	F	G	24			0.0		
..... 12	Semi-stiff brown sandy CLAY (SC); moist		..... 12								
..... 13	Terminated probe at 12 feet bgs.		..... 13								
..... 14			..... 14								
..... 15			..... 15								
..... 16			..... 16								
..... 17			..... 17								
..... 18			..... 18								
..... 19			..... 19								
..... 20			..... 20								

NOTES:

NA: Not Applicable G: Grab PTR: Penetrometer P: Damp S: Saturated
 No: Number C: Composite ppm: parts per million M: Moist OV: Organic Vapors
 NM: Not Measured bgs: below ground surface D: Dry W: Wet  Ground water encountered during drilling.
 Elev: Elevation Fed: Federal ID: Identification H: Helper

Field Boring Log

Page 1 of 1

Site File No. 10415 - 0259004 County Cook
 Site File Name Lyons, IL
 Fed ID No. _____
 Quadrangle Berwyn, IL

Boring No. SIR GP-14 Monitor Well No. N/A
 Surface Elev. N/A Completion Depth 12 feet
 Auger Depth N/A Rotary Depth N/A
 Date Started 11/19/2007 Date Finished 11/19/2007


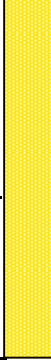
UTM (or State Plane) Coordinates

**NGVD: National Geodetic Vertical Datum

N. (x) _____ E.(y) _____
 Latitude 41 ° 48 ' 49 " Longitude 87 ° 49 ' 28 "

Boring Location See Figure 1

Drilling Equipment Geoprobe

Latitude 41 ° 48 ' 49 " Longitude 87 ° 49 ' 28 "				SAMPLES						BB&J Personnel								
Boring Location See Figure 1										G - Kevin McCartney								
Drilling EquipmentGeoprobe										G- Amber Cicotte								
										D- Logan, CS Drilling								
										H- Justin, CS Drilling								
Depth in Feet	DESCRIPTION OF MATERIALS			Graphic Log	Depth in Feet	SAMPLE ID	SAMPLE TYPE	SAMPLE RECOVERY (IN)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA OR PID READINGS (PPM)	REMARKS						
..... 1	Semi-stiff brown silty CLAY (CL), with gravel; moist			 1	A	G	24			0.0							
..... 2					..... 2												
..... 3				 3	B	G	24			0.0							
..... 4	Loose gray GRAVEL (GP); dry		 4	C								G	24	0.0	BB&J submitted soil sample collected at 4-6 feet bgs for laboratory analyses.		
..... 5				..... 5													
..... 6	Semi-stiff black sandy CLAY (SC); damp			 6													
..... 7				 7								D	G	24			0.0
..... 8					..... 8												
..... 9	-----			 9	E	G	24			0.0							
..... 10					..... 10												
..... 11					Loose light brown sandy CLAY (SC); damp		 11	F	G	24				0.0			
..... 12	..... 12																
..... 13	Terminated probe at 12 feet bgs.			 13													
..... 14					..... 14												
..... 15					..... 15												
..... 16					..... 16												
..... 17					..... 17												
..... 18					..... 18												
..... 19					..... 19												
..... 20					..... 20												


NOTES:

NA: Not Applicable
 No: Number
 NM: Not Measured
 Elev: Elevation

G: Grab
 C: Composite
 bgs: below ground surface
 Fed: Federal

PTR: Penetrometer
 ppm: parts per million
 D: Dry
 ID: Identification

P: Damp
 M: Moist
 W: Wet
 H: Helper

S: Saturated
 OV: Organic Vapors
 Ground water encountered during drilling.

Field Boring Log

Page 1 of 1

Site File No. 10415 - 0259004 County Cook
 Site File Name Lyons, IL
 Fed ID No. _____
 Quadrangle Berwyn, IL

Boring No. SIR GP-15 Monitor Well No. N/A
 Surface Elev. N/A Completion Depth 12 feet
 Auger Depth N/A Rotary Depth N/A
 Date Started 11/19/2007 Date Finished 11/19/2007





UTM (or State Plane) Coordinates

**NGVD: National Geodetic Vertical Datum

N. (x) _____ E.(y) _____
 Latitude 41 ° 48 ' 48 " Longitude 87 ° 49 ' 27 "

Boring Location See Figure 1

Drilling Equipment Geoprobe

Latitude 41 ° 48 ' 48 " Longitude 87 ° 49 ' 27 "				SAMPLES						BB&J Personnel		
Boring Location See Figure 1										G - Kevin McCartney		
Drilling EquipmentGeoprobe										G- Amber Cicotte		
										D- Logan, CS Drilling		
										H- Justin, CS Drilling		
Elev	DESCRIPTION OF MATERIALS			Graphic Log	Depth in Feet	SAMPLE ID	SAMPLE TYPE	SAMPLE RECOVERY (IN)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA OR PID READINGS (PPM)	REMARKS
..... 1	Stiff brown silty CLAY (CL); moist			 1	A	G	24			0.0	
..... 2					..... 2						
..... 3	Stiff wihite GRAVEL (GP); dry			 3	B	G	12			0.4	BB&J submitted soil sample collected at 2-4 feet bgs for laboratory analyses.
..... 4	Stiff dark brown silty CLAY (CL); damp				..... 4						
..... 5				 5	C	G	18		0.0		
..... 6					..... 6						
..... 7				 7	D	G	18		0.0		
..... 8					..... 8						
..... 9	Semi-stiff light brown SAND (SW); damp			 9	E	G	24			0.0	
..... 10					..... 10						
..... 11				 11	F	G	24			0.0	
..... 12					..... 12						
..... 13	Terminated probe at 12 feet bgs.			 13							
..... 14				 14							
..... 15				 15							
..... 16				 16							
..... 17				 17							
..... 18				 18							
..... 19				 19							
..... 20				 20							


NOTES:

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 C: Composite
 bgs: below ground surface
 Fed: Federal

PTR: Penetrometer
 ppm: parts per million
 D: Dry
 ID: Identification

P: Damp
 M: Moist
 W: Wet
 H: Helper

S: Saturated
 OV: Organic Vapors
 Ground water encountered during drilling.

Field Boring Log

Page 1 of 1

Site File No. 10415 - 0259004 County Cook

Boring No. SIR GP-16

Monitor Well No. N/A

Site File Name Lyons, IL

Surface Elev. N/A

Completion Depth 12 feet

Fed ID No. _____

Auger Depth N/A

Rotary Depth N/A

Quadrangle Berwyn, IL

Date Started 11/26/2007

Date Finished 11/26/2007

UTM (or State Plane) Coordinates _____




**NGVD: National Geodetic Vertical Datum

N. (x) _____ E.(y) _____

Latitude 41 ° 48 ' 48 " Longitude 87 ° 49 ' 27 "

Boring Location See Figure 1

Drilling Equipment Geoprobe

Latitude 41 ° 48 ' 48 " Longitude 87 ° 49 ' 27 "		SAMPLES							BB&J Personnel	
Boring Location See Figure 1		Graphic Log	Depth in Feet	SAMPLE ID	SAMPLE TYPE	SAMPLE RECOVERY (IN)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA OR PID READINGS (PPM)	G - Jacob McNamara G- Amber Cicotte D- Logan, CS Drilling H- Justin, CS Drilling
Drilling EquipmentGeoprobe										REMARKS
Elev	DESCRIPTION OF MATERIALS									
1	Semi-stiff brown sandy GRAVEL (GM), with silt; damp		1	A	G	24			0.0	Slight petroleum odor at 8 feet bgs.
2			2							
3			Stiff dark brown silty CLAY (CL), with gravel; damp									3	B	G	24		0.0
4	4									
5	Loose brown SAND (SP), with gravel; moist		5	C	G	24		0.0		
6			6							
7			7						D		G	24		0.0
8	Semi-stiff black silty CLAY (CL); moist		8							
9			9	E	G	24		2.6		
10			10							
11			11	F	G	24		4.1	BB&J submitted soil sample collected at 10-12 feet bgs for laboratory analyses.	
12			12							
13	Terminated probe at 12 feet bgs.		13							
14			14							
15			15							
16			16							
17			17							
18			18							
19			19							
20			20							


NOTES:

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Elev: Elevation

G: Grab
C: Composite
bgs: below ground surface
Fed: Federal

PTR: Penetrometer
ppm: parts per million
D: Dry
ID: Identification

P: Damp
M: Moist
W: Wet
H: Helper

S: Saturated
OV: Organic Vapors
 Ground water encountered during drilling.

Field Boring Log

Page 1 of 1

Site File No. 10415 - 0259004 County Cook

Boring No. SIR GP-17

Monitor Well No. N/A

Site File Name Lyons, IL

Surface Elev. N/A

Completion Depth 12 feet

Fed ID No. _____

Auger Depth N/A

Rotary Depth N/A

Quadrangle Berwyn, IL

Date Started 11/27/2007

Date Finished 11/27/2007

UTM (or State Plane) Coordinates

**NGVD: National Geodetic Vertical Datum

N. (x) _____ E.(y) _____

Latitude 41 ° 48 ' 49 " Longitude 87 ° 49 ' 25 "

Boring Location See Figure 1

Drilling Equipment Geoprobe

Latitude 41 ° 48 ' 49 " Longitude 87 ° 49 ' 25 "		SAMPLES							BB&J Personnel	
Boring Location See Figure 1		<div>Graphic Log</div>	<div>Depth in Feet</div>	<div>SAMPLE ID</div>	<div>SAMPLE TYPE</div>	<div>SAMPLE RECOVERY (IN)</div>	<div>PENETROMETER</div>	<div>N VALUES (BLOW COUNTS)</div>	<div>OVA OR PID READINGS (PPM)</div>	G - Mike Couvreur G- Amber Cicotte D- Dan, CS Drilling H- Justin, CS Drilling
Drilling EquipmentGeoprobe										REMARKS
<div>Elev</div>	<div>DESCRIPTION OF MATERIALS</div>									
<div>..... 1</div>	No Recovery		<div>..... 1</div>	A	G	12			1.4	
<div>..... 2</div>	Stiff gray clayey GRAVEL (GC), with gravel; dry	<div>..... 2</div>								
<div>..... 3</div>		<div>..... 3</div>	B	G	24		0.7			
<div>..... 4</div>		<div>..... 4</div>								
<div>..... 5</div>	Loose light gray GRAVEL (GP); dry	<div>..... 5</div>	C	G	24		0.7			
<div>..... 6</div>		<div>..... 6</div>								
<div>..... 7</div>		<div>..... 7</div>	D	G	24		0.7			
<div>..... 8</div>		<div>..... 8</div>								
<div>..... 9</div>	Loose black silty SAND (SM); dry	<div>..... 9</div>	E	G	24		0.7			
<div>..... 10</div>		<div>..... 10</div>								
<div>..... 11</div>		<div>..... 11</div>	F	G	24		2.6			
<div>..... 12</div>		<div>..... 12</div>								
<div>..... 13</div>	Terminated probe at 12 feet bgs.		<div>..... 13</div>							
<div>..... 14</div>		<div>..... 14</div>								
<div>..... 15</div>		<div>..... 15</div>								
<div>..... 16</div>		<div>..... 16</div>								
<div>..... 17</div>		<div>..... 17</div>								
<div>..... 18</div>		<div>..... 18</div>								
<div>..... 19</div>		<div>..... 19</div>								
<div>..... 20</div>		<div>..... 20</div>								


NOTES:

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Elev: Elevation

G: Grab
C: Composite
bgs: below ground surface
Fed: Federal

PTR: Penetrometer
ppm: parts per million
D: Dry
ID: Identification

P: Damp
M: Moist
W: Wet
H: Helper

S: Saturated
OV: Organic Vapors
 Ground water encountered during drilling.

Field Boring Log

Page 1 of 1

Site File No. 10415 - 0259004 County Cook
 Site File Name Lyons, IL
 Fed ID No. _____
 Quadrangle Berwyn, IL

Boring No. SIR GP-19 Monitor Well No. N/A
 Surface Elev. N/A Completion Depth 12 feet
 Auger Depth N/A Rotary Depth N/A
 Date Started 11/20/2007 Date Finished 11/20/2007



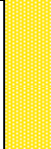

UTM (or State Plane) Coordinates

**NGVD: National Geodetic Vertical Datum

N. (x) _____ E.(y) _____
 Latitude 41 ° 48 ' 48 " Longitude 87 ° 49 ' 25 "

Boring Location See Figure 1

Drilling Equipment Geoprobe

Latitude 41 ° 48 ' 48 " Longitude 87 ° 49 ' 25 "				SAMPLES						BB&J Personnel		
Boring Location See Figure 1				Graphic Log	Depth in Feet	SAMPLE ID	SAMPLE TYPE	SAMPLE RECOVERY (IN)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA OR PID READINGS (PPM)	G - Jacob McNamara
Drilling EquipmentGeoprobe												H- Justin, CS Drilling
Elev	DESCRIPTION OF MATERIALS											REMARKS
	No Recovery											
1	Loose dark brown silty CLAY (CL); dry				1	A	G	18			0.2	
2					2							
3					3							
4	Loose light gray CLAY (CL); dry				4	B	G	24			0.2	BB&J submitted soil sample collected at 2-4 feet bgs for laboratory analyses.
5					5							
6	No Recovery				6	C	G	12			0.0	White substance that appeared to be wet cement mix.
7	Semi-stiff brown sandy CLAY (SC); damp				7							
8					8							
9					9							
10	Loose brown SAND (SW); moist				10	E	G	24			0.0	
11					11							
12					12							
13	Terminated probe at 12 feet bgs.				13							
14					14							
15					15							
16					16							
17					17							
18					18							
19					19							
20					20							


NOTES:

NA: Not Applicable
 No: Number
 NM: Not Measured
 Elev: Elevation

G: Grab
 C: Composite
 bgs: below ground surface
 Fed: Federal

PTR: Penetrometer
 ppm: parts per million
 D: Dry
 ID: Identification

P: Damp
 M: Moist
 W: Wet
 H: Helper

S: Saturated
 OV: Organic Vapors
 Ground water encountered during drilling.

Field Boring Log

Page 1 of 1

Site File No. 10415 - 0259004 County Cook

Boring No. SIR GP-20

Monitor Well No. N/A

Site File Name Lyons, IL

Surface Elev. N/A

Completion Depth 12 feet

Fed ID No. _____

Auger Depth N/A

Rotary Depth N/A

Quadrangle Berwyn, IL

Date Started 11/27/2007

Date Finished 11/27/2007

UTM (or State Plane) Coordinates

**NGVD: National Geodetic Vertical Datum

N. (x) _____ E.(y) _____

Latitude 41 ° 48 ' 48 " Longitude 87 ° 49 ' 25 "

Boring Location See Figure 1

Drilling Equipment Geoprobe

Latitude	41 ° 48 ' 48 "	Longitude	87 ° 49 ' 25 "	SAMPLES						BB&J Personnel		
Boring Location	See Figure 1			Graphic Log	Depth in Feet	SAMPLE ID	SAMPLE TYPE	SAMPLE RECOVERY (IN)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA OR PID READINGS (PPM)	G - Mike Couvreur
Drilling Equipment	Geoprobe											H- Justin, CS Drilling
Elev	DESCRIPTION OF MATERIALS											REMARKS
1	No Recovery			1	A	G	0			0.0		
2				2								
3	Medium dense dark gray SAND (SP); dry			3	B	G	24		1.4			
4	Dense light brown SAND (SW); dry			4								
5	Dense dark gray clayey SAND (SC); damp			5	C	G	24		1.2			
6				6								
7	Stiff dark gray and brown mottled CLAY (CL); damp			7	D	G	24		0.9			
8				8								
9	Stiff light brown CLAY (GC), with gravel; damp			9	E	G	24		1.0			
10				10								
11	Semi-stiff dark borwn CLAY (CL); damp			11	F	G	24		1.5	BB&J submitted soil sample collected at 10-12 feet bgs for laboratory analyses.		
12	Medium dense light brown SAND (SW); damp			12								
13	Terminated probe at 12 feet bgs.			13								
14				14								
15				15								
16				16								
17				17								
18				18								
19				19								
20				20								

NOTES:

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G: Grab
C: Composite
bgs: below ground surface
Fed: Federal

PTR: Penetrometer
ppm: parts per million
D: Dry
ID: Identification

P: Damp
M: Moist
W: Wet
H: Helper

S: Saturated
OV: Organic Vapors
Ground water encountered during drilling.

Field Boring Log

Page 1 of 1

Site File No. 10415 - 0259004 County Cook
 Site File Name Lyons, IL
 Fed ID No. _____
 Quadrangle Berwyn, IL

Boring No. SIR GP-21 Monitor Well No. N/A
 Surface Elev. N/A Completion Depth 12 feet
 Auger Depth N/A Rotary Depth N/A
 Date Started 11/27/2007 Date Finished 11/27/2007



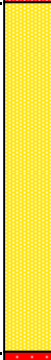

UTM (or State Plane) Coordinates

**NGVD: National Geodetic Vertical Datum

N. (x) _____ E.(y) _____
 Latitude 41 ° 48 ' 48 " Longitude 87 ° 49 ' 25 "

Boring Location See Figure 1

Drilling Equipment Geoprobe

Latitude <u>41</u> ° <u>48</u> ' <u>48</u> " Longitude <u>87</u> ° <u>49</u> ' <u>25</u> "				SAMPLES						BB&J Personnel	
Boring Location <u>See Figure 1</u>										G - Mike Couvreur	
Drilling Equipment <u>Geoprobe</u>										H - Justin, CS Drilling	
Elev	DESCRIPTION OF MATERIALS	Graphic Log	Depth in Feet	SAMPLE ID	SAMPLE TYPE	SAMPLE RECOVERY (IN)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA OR PID READINGS (PPM)	REMARKS	
<div>..... 1</div>	Stiff dark gray CLAY (CL); damp		<div>..... 1</div>	A	G	24			1.4	BB&J submitted soil sample collected at 0-2 feet bgs for laboratory analyses.	
<div>..... 2</div>			<div>..... 2</div>								
<div>..... 3</div>			<div>..... 3</div>	B	G	24			1.2		
<div>..... 4</div>	<div>..... 4</div>										
<div>..... 5</div>	Medium dense dark gray SAND (SP), with gravel; damp		<div>..... 5</div>	C	G	24			1.0		
<div>..... 6</div>	<div>..... 6</div>										
<div>..... 7</div>	Dense dark gray clayey SAND (SC); damp		<div>..... 7</div>	D	G	24			1.0		
<div>..... 8</div>			<div>..... 8</div>								
<div>..... 9</div>			<div>..... 9</div>	E	G	24			1.0		
<div>..... 10</div>			<div>..... 10</div>								
<div>..... 11</div>			<div>..... 11</div>	F	G	24			0.9		
<div>..... 12</div>	<div>..... 12</div>										
<div>..... 13</div>	Medium dense light brown SAND (SW); damp		<div>..... 13</div>								
<div>..... 14</div>	<div>..... 14</div>										
<div>..... 15</div>	Terminated probe at 12 feet bgs.		<div>..... 15</div>								
<div>..... 16</div>			<div>..... 16</div>								
<div>..... 17</div>			<div>..... 17</div>								
<div>..... 18</div>			<div>..... 18</div>								
<div>..... 19</div>			<div>..... 19</div>								
<div>..... 20</div>			<div>..... 20</div>								


NOTES:

NA: Not Applicable
 No: Number
 NM: Not Measured
 Elev: Elevation

G: Grab
 C: Composite
 bgs: below ground surface
 Fed: Federal

PTR: Penetrometer
 ppm: parts per million
 D: Dry
 ID: Identification

P: Damp
 M: Moist
 W: Wet
 H: Helper

S: Saturated
 OV: Organic Vapors
 Ground water encountered during drilling.

Field Boring Log

Page 1 of 1

Site File No. 10415 - 0259004 County Cook

Boring No. SIR GP-22

Monitor Well No. N/A

Site File Name Lyons, IL

Surface Elev. N/A

Completion Depth 12 feet

Fed ID No. _____

Auger Depth N/A

Rotary Depth N/A

Quadrangle Berwyn, IL

Date Started 11/27/2007

Date Finished 11/27/2007

UTM (or State Plane) Coordinates _____





**NGVD: National Geodetic Vertical Datum

N. (x) _____ E.(y) _____

Latitude 41 ° 48 ' 48 " Longitude 87 ° 49 ' 25 "

Boring Location See Figure 1

Drilling Equipment Geoprobe

Latitude 41° 48' 48" Longitude 87° 49' 25" "		SAMPLES							BB&J Personnel	
Boring Location See Figure 1		Graphic Log	Depth in Feet	SAMPLE ID	SAMPLE TYPE	SAMPLE RECOVERY (IN)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA OR PID READINGS (PPM)	G - Mike Couvreur
Drilling EquipmentGeoprobe										G- Amber Cicotte
										D- Dan, CS Drilling
										H- Justin, CS Drilling
Elev	DESCRIPTION OF MATERIALS									REMARKS
..... 1	No Recovery	 1	A	G	0			0.0	
..... 2			..... 2						
..... 3			..... 3						
Semi-stiff dark gray CLAY (CL); damp		 4	B	G	12			0.0	
..... 4	..... 4								
..... 5	Loose light gray and brown SAND (SP); damp	 5	C	G	12			0.9	
..... 6	No Recovery		..... 6						
..... 7		 7	D	G	0		0.0		
..... 8			..... 8						
..... 9	Loose light gray and brown SAND (SP); damp	 9	E	G	24			0.9	
..... 10	..... 10								
..... 11	Semi-stiff light brown CLAY (CL); damp	 11	F	G	24			0.9		BB&J submitted soil sample collected at 10-12 feet bgs for laboratory analyses.
..... 12	..... 12								
..... 13	Terminated probe at 12 feet bgs.	 13							
..... 14			..... 14						
..... 15			..... 15						
..... 16			..... 16						
..... 17			..... 17						
..... 18			..... 18						
..... 19			..... 19						
..... 20			..... 20						

NOTES:

NA: Not Applicable
No: Number
NM: Not Measured
Elev: Elevation

G: Grab
C: Composite
bgs: below ground surface
Fed: Federal

PTR: Penetrometer
ppm: parts per million
D: Dry
ID: Identification

P: Damp
M: Moist
W: Wet
H: Helper

S: Saturated
OV: Organic Vapors
 Ground water encountered during drilling.

Field Boring Log

Page 1 of 1

Site File No. 10415 - 0259004 County Cook Boring No. SIR GP-23 Monitor Well No. N/A
 Site File Name Lyons, IL Surface Elev. N/A Completion Depth 12 feet
 Fed ID No. Auger Depth N/A Rotary Depth N/A
 Quadrangle Berwyn, IL Date Started 11/20/2007 Date Finished 11/20/2007





UTM (or State Plane) Coordinates

**NGVD: National Geodetic Vertical Datum

N. (x) E.(y)
 Latitude 41 ° 48 ' 48 " Longitude 87 ° 49 ' 25 "

Boring Location See Figure 1

Drilling Equipment Geoprobe

Latitude 41 ° 48 ' 48 " Longitude 87 ° 49 ' 25 "		SAMPLES							BB&J Personnel	
Boring Location See Figure 1		Graphic Log	Depth in Feet	SAMPLE ID	SAMPLE TYPE	SAMPLE RECOVERY (IN)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA OR PID READINGS (PPM)	G - Jacob McNamara
Drilling EquipmentGeoprobe										G- Amber Cicotte
Elev	DESCRIPTION OF MATERIALS									D- Logan, CS Drilling
										H- Justin, CS Drilling
										REMARKS
1	No Recovery		1	A	G	0			0.0	
2			2							
3	Semi-stiff brown CLAY (CL); moist		3	B	G	24			0.0	
4	Loose brown sandy CLAY (SC), with gravel; dry		4							
5			5	C	G	12			0.0	
6	No Recovery		6							
7			7	D	G	0			0.0	
8			8							
9	Loose light brown sandy CLAY (SC); dry		9	E	G	24			0.0	
10			10							
11	Loose brown clayey GRAVEL (GC); dry		11	F	G	24			1.2	BB&J submitted soil sample collected at 10-12 feet bgs for laboratory analyses.
12			12							
13	Terminated probe at 12 feet bgs.		13							
14			14							
15			15							
16			16							
17			17							
18			18							
19			19							
20			20							

NOTES:

NA: Not Applicable
 No: Number
 NM: Not Measured
 Elev: Elevation

G: Grab
 C: Composite
 bgs: below ground surface
 Fed: Federal

PTR: Penetrometer
 ppm: parts per million
 D: Dry
 ID: Identification

P: Damp
 M: Moist
 W: Wet
 H: Helper

S: Saturated
 OV: Organic Vapors
 Ground water encountered during drilling.

Field Boring Log

Page 1 of 1

Site File No. 10415 - 0259004 County Cook

Boring No. SIR GP-24

Monitor Well No. N/A

Site File Name Lyons, IL

Surface Elev. N/A

Completion Depth 12 feet

Fed ID No. _____

Auger Depth N/A

Rotary Depth N/A

Quadrangle Berwyn, IL

Date Started 11/26/2007

Date Finished 11/26/2007

UTM (or State Plane) Coordinates _____

**NGVD: National Geodetic Vertical Datum

N. (x) _____ E.(y) _____

Latitude 41 ° 48 ' 48 " Longitude 87 ° 49 ' 25 "

Boring Location See Figure 1

Drilling Equipment Geoprobe

Latitude 41 ° 48 ' 48 " Longitude 87 ° 49 ' 25 "		SAMPLES							BB&J Personnel	
Boring Location See Figure 1		Graphic Log	Depth in Feet	SAMPLE ID	SAMPLE TYPE	SAMPLE RECOVERY (IN)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA OR PID READINGS (PPM)	G - Jacob McNamara
Drilling Equipment Geoprobe										G- Amber Cicotte
Elev	DESCRIPTION OF MATERIALS	Graphic Log	Depth in Feet	SAMPLE ID	SAMPLE TYPE	SAMPLE RECOVERY (IN)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA OR PID READINGS (PPM)	D- Logan, CS Drilling
										H- Justin, CS Drilling
1	No Recovery		1	A	G	0			0.0	Slight petroleum odor at 5 feet bgs.
2			2							
3	Stiff dark brown clayey GRAVEL (GC); dry		3	B	G	24			0.0	
4			4							
5			5	C	G	24			0.0	
6			6							
7	Pulverized gravel		7	D	G	14			0.5	
8			8							
9			9	E	G	12			0.0	
10	10									
11	Stiff gray clayey GRAVEL (GC); moist		11	F	G	24			0.7	BB&J submitted soil sample collected at 10-12 feet bgs for laboratory analyses.
12			12							
13	Terminated probe at 12 feet bgs.		13							
14			14							
15			15							
16			16							
17			17							
18			18							
19			19							
20			20							

NOTES:

NA: Not Applicable
No: Number
NM: Not Measured
Elev: Elevation

G: Grab
C: Composite
bgs: below ground surface
Fed: Federal

PTR: Penetrometer
ppm: parts per million
D: Dry
ID: Identification

P: Damp
M: Moist
W: Wet
H: Helper

S: Saturated
OV: Organic Vapors
Ground water encountered during drilling.

Field Boring Log

Page 1 of 1

Site File No. 10415 - 0259004 County Cook
 Site File Name Lyons, IL
 Fed ID No. _____
 Quadrangle Berwyn, IL

Boring No. SIR GP-25 Monitor Well No. N/A
 Surface Elev. N/A Completion Depth 12 feet
 Auger Depth N/A Rotary Depth N/A
 Date Started 11/26/2007 Date Finished 11/26/2007





UTM (or State Plane) Coordinates

**NGVD: National Geodetic Vertical Datum

N. (x) _____ E.(y) _____
 Latitude 41 ° 48 ' 48 " Longitude 87 ° 49 ' 25 "

Boring Location See Figure 1

Drilling Equipment Geoprobe

Latitude 41 ° 48 ' 48 " Longitude 87 ° 49 ' 25 "				SAMPLES						BB&J Personnel		
Boring Location See Figure 1										G - Jacob McNamara		
Drilling EquipmentGeoprobe										G- Amber Cicotte		
										D- Logan, CS Drilling		
										H- Justin, CS Drilling		
Elev	DESCRIPTION OF MATERIALS			Graphic Log	Depth in Feet	SAMPLE ID	SAMPLE TYPE	SAMPLE RECOVERY (IN)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA OR PID READINGS (PPM)	REMARKS
..... 1	No Recovery			 1	A	G	0			0.0	
..... 2					..... 2						
..... 3	Semi-stiff dark brown sandy CLAY (SC), with gravel; moist			 3	B	G	14			0.0	
..... 4	Gravel				..... 4						
..... 5	Semi-stiff brown clayey GRAVEL (GC); dry			 5	C	G	12		0.2		
..... 6	No Recovery				..... 6						
..... 7			 7	D	G	0		0.0			
..... 8				..... 8							
..... 9	Semi-stiff brown clayey GRAVEL (GC); moist			 9	E	G	24		0.0		
..... 10					..... 10						
..... 11	Loose black CLAY (CL); dry			 11	F	G	24		0.2	BB&J submitted soil sample collected at 10-12 feet bgs for laboratory analyses.	
..... 12					..... 12						
..... 13	Terminated probe at 12 feet bgs.			 13							
..... 14					..... 14						
..... 15					..... 15						
..... 16					..... 16						
..... 17					..... 17						
..... 18					..... 18						
..... 19					..... 19						
..... 20					..... 20						


NOTES:

NA: Not Applicable
 No: Number
 NM: Not Measured
 Elev: Elevation

G: Grab
 C: Composite
 bgs: below ground surface
 Fed: Federal

PTR: Penetrometer
 ppm: parts per million
 D: Dry
 ID: Identification

P: Damp
 M: Moist
 W: Wet
 H: Helper

S: Saturated
 OV: Organic Vapors
 Ground water encountered during drilling.

Field Boring Log

Page 1 of 1

Site File No. 10415 - 0259004 County Cook

Boring No. SIR GP-27

Monitor Well No. N/A

Site File Name Lyons, IL

Surface Elev. N/A

Completion Depth 12 feet

Fed ID No. _____

Auger Depth N/A

Rotary Depth N/A

Quadrangle Berwyn, IL

Date Started 11/19/2007

Date Finished 11/19/2007

UTM (or State Plane) Coordinates

**NGVD: National Geodetic Vertical Datum

N. (x) _____ E.(y) _____

Latitude 41 ° 48 ' 48 " Longitude 87 ° 49 ' 25 "

Boring Location See Figure 1

Drilling Equipment Geoprobe

Latitude 41 ° 48 ' 48 " Longitude 87 ° 49 ' 25 "		SAMPLES							BB&J Personnel	
Boring Location See Figure 1		<div>Graphic Log</div>	<div>Depth in Feet</div>	<div>SAMPLE ID</div>	<div>SAMPLE TYPE</div>	<div>SAMPLE RECOVERY (IN)</div>	<div>PENETROMETER</div>	<div>N VALUES (BLOW COUNTS)</div>	<div>OVA OR PID READINGS (PPM)</div>	G - Jacob McNamara
Drilling EquipmentGeoprobe										H- Justin, CS Drilling
<div>Elev</div>	<div>DESCRIPTION OF MATERIALS</div>									<div>REMARKS</div>
<div>..... 1</div>	Loose brown sandy CLAY (SC), with gravel; damp	<div>.....</div>	<div>..... 1</div>	A	G	18			0.2	
<div>..... 2</div>			<div>..... 2</div>							
<div>..... 3</div>	Loose white GRAVEL (GP); dry	<div>.....</div>	<div>..... 3</div>	B	G	18			0.2	
<div>..... 4</div>	Semi-stiff brown CLAY (CL); damp	<div>.....</div>	<div>..... 4</div>							
<div>..... 5</div>				<div>..... 5</div>	C	G	24				0.2
<div>..... 6</div>	Semi-stiff light brown and orange CLAY (CL), with gravel; damp	<div>.....</div>	<div>..... 6</div>							
<div>..... 7</div>				<div>..... 7</div>	D	G	12			0.4	BB&J submitted soil sample collected at 6-8 feet bgs for laboratory analyses.
<div>..... 8</div>	Semi-stiff orange and light brown mottled sandy CLAY (SC); damp	<div>.....</div>	<div>..... 8</div>							
<div>..... 9</div>				<div>..... 9</div>	E	G	18			0.4
<div>..... 10</div>	Semi-stiff light brown SAND (SW); damp	<div>.....</div>	<div>..... 10</div>							
<div>..... 11</div>			<div>..... 11</div>	F	G	18			0.2	
<div>..... 12</div>			<div>..... 12</div>							
<div>..... 13</div>			Terminated probe at 12 feet bgs.	<div>.....</div>	<div>..... 13</div>					
<div>..... 14</div>	<div>..... 14</div>									
<div>..... 15</div>	<div>..... 15</div>									
<div>..... 16</div>	<div>..... 16</div>									
<div>..... 17</div>	<div>..... 17</div>									
<div>..... 18</div>	<div>..... 18</div>									
<div>..... 19</div>	<div>..... 19</div>									
<div>..... 20</div>	<div>..... 20</div>									

NOTES:

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G: Grab
C: Composite
bgs: below ground surface
Fed: Federal

PTR: Penetrometer
ppm: parts per million
D: Dry
ID: Identification

P: Damp
M: Moist
W: Wet
H: Helper

S: Saturated
OV: Organic Vapors
 Ground water encountered during drilling.

Field Boring Log

Page 1 of 1

Site File No. 10415 - 0259004 County Cook

Boring No. SIR GP-28

Monitor Well No. N/A

Site File Name Lyons, IL

Surface Elev. N/A

Completion Depth 12 feet

Fed ID No. _____

Auger Depth N/A

Rotary Depth N/A

Quadrangle Berwyn, IL

Date Started 11/20/2007

Date Finished 11/20/2007

UTM (or State Plane) Coordinates

**NGVD: National Geodetic Vertical Datum

N. (x) _____ E.(y) _____

Latitude 41 ° 48 ' 48 " Longitude 87 ° 49 ' 25 "

Boring Location See Figure 1

Drilling Equipment Geoprobe

Latitude 41 ° 48 ' 48 " Longitude 87 ° 49 ' 25 "		SAMPLES							BB&J Personnel																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
Boring Location See Figure 1				SAMPLE ID	SAMPLE TYPE	SAMPLE RECOVERY (IN)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA OR PID READINGS (PPM)	G - Jacob McNamara																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
Drilling Equipment Geoprobe										H- Amber Cicotte																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
<div>Elev</div>	<div>DESCRIPTION OF MATERIALS</div>	<div>Graphic Log</div>	<div>Depth in Feet</div>							D- Logan, CS Drilling																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		

NOTES:

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NM: Not Measured
Elev: Elevation

G: Grab
C: Composite
bgs: below ground surface
Fed: Federal

PTR: Penetrometer
ppm: parts per million
D: Dry
ID: Identification

P: Damp
M: Moist
W: Wet
H: Helper

S: Saturated
OV: Organic Vapors
Ground water encountered during drilling.

Field Boring Log

Page 1 of 1

Site File No. 10415 - 0259004 County Cook

Boring No. SIR GP-29

Monitor Well No. N/A

Site File Name Lyons, IL

Surface Elev. N/A

Completion Depth 12 feet

Fed ID No.

Auger Depth N/A

Rotary Depth N/A

Quadrangle Berwyn, IL

Date Started 11/20/2007

Date Finished 11/20/2007

UTM (or State Plane) Coordinates

**NGVD: National Geodetic Vertical Datum

N. (x) E.(y)

Latitude 41 ° 48 ' 48 " Longitude 87 ° 49 ' 25 "

Boring Location See Figure 1

Drilling Equipment Geoprobe

Latitude 41° 48' 48" Longitude 87° 49' 25" "		SAMPLES							BB&J Personnel	
Boring Location See Figure 1									G - Jacob McNamara	
Drilling EquipmentGeoprobe									G- Amber Cicotte	
									D- Logan, CS Drilling	
									H- Justin, CS Drilling	
Elev	DESCRIPTION OF MATERIALS	Graphic Log	Depth in Feet	SAMPLE ID	SAMPLE TYPE	SAMPLE RECOVERY (IN)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA OR PID READINGS (PPM)	REMARKS
1	Stiff brown silty CLAY (CL), with gravel; damp		1	A	G	24			0.0	
2			2							
3	Loose gray GRAVEL (GP); dry		3	B	G	24			0.0	
4	Stiff brown silty CLAY (CL), with gravel; damp		4							
5			5	C	G	24		0.0		
6	Semi-stiff gray silty CLAY (CL), with gravel; damp		6							
7			7	D	G	24	0.0			
8			8							
9			Semi-stiff brown silty CLAY (CL); damp		9	E	G	24	0.0	BB&J submitted soil sample collected at 8-10 feet bgs for laboratory analyses.
10	10									
11	Loose gray GRAVEL (GP); dry		11	F	G	24			0.0	
12	Stiff gray silty CLAY (CL), with gravel; dry		12							
13	Terminated probe at 12 feet bgs.		13							
14			14							
15			15							
16			16							
17			17							
18			18							
19			19							
20			20							

NOTES:

NA: Not Applicable
No: Number
NM: Not Measured
Elev: Elevation

G: Grab
C: Composite
bgs: below ground surface
Fed: Federal

PTR: Penetrometer
ppm: parts per million
D: Dry
ID: Identification

P: Damp
M: Moist
W: Wet
H: Helper

S: Saturated
OV: Organic Vapors
 Ground water encountered during drilling.

Field Boring Log

Page 1 of 1

Site File No. 10415 - 0259004 County Cook
 Site File Name Lyons, IL
 Fed ID No. _____
 Quadrangle Berwyn, IL

Boring No. SIR GP-30 Monitor Well No. N/A
 Surface Elev. N/A Completion Depth 12 feet
 Auger Depth N/A Rotary Depth N/A
 Date Started 11/26/2007 Date Finished 11/26/2007

UTM (or State Plane) Coordinates

**NGVD: National Geodetic Vertical Datum

N. (x) _____ E.(y) _____
 Latitude 41 ° 48 ' 48 " Longitude 87 ° 49 ' 25 "

Boring Location See Figure 1

Drilling Equipment Geoprobe

Latitude 41 ° 48 ' 48 " Longitude 87 ° 49 ' 25 "			SAMPLES						BB&J Personnel		
Boring Location See Figure 1									G - Jacob McNamara		
Drilling EquipmentGeoprobe									G- Amber Cicotte		
			Graphic Log	Depth in Feet	SAMPLE ID	SAMPLE TYPE	SAMPLE RECOVERY (IN)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA OR PID READINGS (PPM)	D- Logan, CS Drilling
Elev	DESCRIPTION OF MATERIALS	H- Justin, CS Drilling									
REMARKS											
1	Semi-stiff brown silty CLAY (CL), with large gravel; damp		1	A	G	24				0.2	
2	Loose light brown SAND (GP), with medium gravel; dry		2								
3	Stiff dark brown silty CLAY (CL); moist		3	B	G	24			0.0		
4			4								
5			5	C	G	24			1.5	BB&J submitted soil sample collected at 4-6 feet bgs for laboratory analyses.	
6			6								
7	Semi-stiff light brown SAND (GP), with gravel; moist		7	D	G	24			0.3	Slight petroleum odor at 9 feet bgs.	
8			8								
9	Stiff brown silty CLAY (CL), with gravel; damp		9	E	G	24			0.2		
10			10								
11			11	F	G	24			0.0		
12			12								
13	Terminated probe at 12 feet bgs.		13								
14			14								
15			15								
16			16								
17			17								
18			18								
19			19								
20			20								

NOTES:

NA: Not Applicable
 No: Number
 NM: Not Measured
 Elev: Elevation

G: Grab
 C: Composite
 bgs: below ground surface
 Fed: Federal

PTR: Penetrometer
 ppm: parts per million
 D: Dry
 ID: Identification

P: Damp
 M: Moist
 W: Wet
 H: Helper

S: Saturated
 OV: Organic Vapors
 Ground water encountered during drilling.

Field Boring Log

Page 1 of 1

Site File No. 10415 - 0259004 County Cook

Boring No. SIR MW-3

Monitor Well No. N/A

Site File Name Lyons, IL

Surface Elev. N/A

Completion Depth 19.5 feet

Fed ID No. _____

Auger Depth N/A

Rotary Depth N/A

Quadrangle Berwyn, IL

Date Started 11/28/2007

Date Finished 11/28/2007

UTM (or State Plane) Coordinates


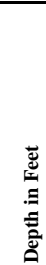







**NGVD: National Geodetic Vertical Datum

N. (x) _____ E.(y) _____

Latitude 41 ° 48 ' 48 " Longitude 87 ° 49 ' 25 "

Boring Location See Figure 1

Drilling Equipment Hollow Stem Auger

Latitude 41 ° 48 ' 48 " Longitude 87 ° 49 ' 25 "		SAMPLES							BB&J Personnel								
Boring Location See Figure 1				SAMPLE ID	SAMPLE TYPE	SAMPLE RECOVERY (IN)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA OR PID READINGS (PPM)	G - Hilary Zawadowski G- Amber Cicotte D- Marc, CS Drilling H- Ross, CS Drilling							
Drilling EquipmentHollow Stem Auger										REMARKS							
Elev	DESCRIPTION OF MATERIALS																
..... 1	Stiff brown CLAY (GC), with gravel; damp		..... 1	A	G	18		77	0.6	BB&J submitted soil sample collected at 0-2 feet bgs for laboratory analyses.						
..... 2	Loose light brown SAND (SP), with gravel; dry		..... 2													
..... 3	Stiff dark brown sandy CLAY (SC); dry		..... 3	B	G	16		49	0.7							
..... 4			..... 4													
..... 5		 5								C	G	20				
..... 6			..... 6													
..... 7	Dense gray SAND (SP), with gravel; damp		..... 7	D	G	22		34	0.5							
..... 8			..... 8													
..... 9		 9								E	G	18	54	0.7		
..... 10	..... 10															
..... 11	Stiff dark brown sandy CLAY (SC); damp		11	F	G	0		66	0.0								
..... 12															 12	
..... 13										 13	G	G	24		50	0.5
..... 14										 14						
..... 15	Very dense light gray SAND (SP), with gravel; dry		..... 15	H	G	20		64	0.5							
..... 16			..... 16													
..... 17										 17	I	G	16		125	0.6	Ground water encountered at 17 feet
..... 18	..... 18															
..... 19	..... 19	J		G	8		93	0.9	BB&J submitted soil sample collected at 18-20 feet bgs for laboratory analyses.							
..... 20	Terminated boring at 19.5 feet bgs.								 20	Bedrock encountered at 19.5 feet						

NOTES:

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Elev: Elevation

G: Grab
C: Composite
bgs: below ground surface
Fed: Federal

PTR: Penetrometer
ppm: parts per million
D: Dry
ID: Identification

P: Damp
M: Moist
W: Wet
H: Helper

S: Saturated
OV: Organic Vapors
 Ground water encountered during drilling.

Field Boring Log

Page 1 of 5

Site File No. 10415 - 0259004 County Cook

Boring No. SIR MW-4

Monitor Well No. N/A

Site File Name Lyons, IL

Surface Elev. N/A

Completion Depth 96 feet

Fed ID No. _____

Auger Depth N/A

Rotary Depth N/A

Quadrangle Berwyn, IL

Date Started 11/30/2007

Date Finished 12/5/2007

UTM (or State Plane) Coordinates _____

**NGVD: National Geodetic Vertical Datum






N. (x) _____

E.(y) _____

Latitude 41 ° 48 ' 48 " Longitude 87 ° 49 ' 25 "

Boring Location See Figure 1

Drilling Equipment Hollow Stem Auger

Latitude 41 ° 48 ' 48 " Longitude 87 ° 49 ' 25 "			SAMPLES						BB&J Personnel	
Boring Location See Figure 1										G - Mike Couvreur
Drilling EquipmentHollow Stem Auger										H- Ross, CS Drilling
Elev	DESCRIPTION OF MATERIALS	Graphic Log	Depth in Feet	SAMPLE ID	SAMPLE TYPE	SAMPLE RECOVERY (IN)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA OR PID READINGS (PPM)	REMARKS
..... 1	Loose dark gray clayey GRAVEL (GC); dry		..... 1	A	G	17		0	0.0	BB&J submitted soil sample collected at 0-2 feet bgs for laboratory analyses.
..... 2			..... 2							
..... 3			----- Stiff dark brown silty CLAY (CL); damp	 3	B	G	16		80	1.9	Petroleum odor from 5.5-8 feet bgs.
..... 4	..... 4									
..... 5	Firm gray clayey GRAVEL (GC); dry		..... 5	C	G	10		64	1.2	
..... 6			..... 6							
..... 7			Dense brown SAND (SW); moist	 7	D	G	20		34	3.4
..... 8	Firm black GRAVEL (GP); dry	..... 8								
..... 9		..... 9	E		G	18		14	3.7	BB&J submitted soil sample collected at 8-10 feet bgs for laboratory analyses.
..... 10		..... 10								
..... 11	Firm black silty CLAY (CL), with gravel; moist		..... 11	F	G	20		11	2.2	
..... 12			..... 12							
..... 13			..... 13	G	G	14		7	2.8	
..... 14											..... 14
..... 15			..... 15	H	G	12		8	3.0	
..... 16			..... 16							
..... 17			..... 17	I	G	18		7	4.1	
..... 18	----- Very stiff and hard black silty CLAY (CL); moist 18								
..... 19	 19	J	G	20		43	2.5		
..... 20	Loose black GRAVEL (GP); dry 20								

NOTES:

NA: Not Applicable
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bgs: below ground surface
Fed: Federal

PTR: Penetrometer
ppm: parts per million
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M: Moist
W: Wet
H: Helper

S: Saturated
OV: Organic Vapors
 Ground water encountered during drilling.

Field Boring Log

Page 2 of 5

Site File No. 10415 - 0259004 County Cook

Boring No. SIR MW-4

Monitor Well No. N/A

Site File Name Lyons, IL

Surface Elev. N/A

Completion Depth 96 feet

Fed ID No. _____

Auger Depth N/A

Rotary Depth N/A

Quadrangle Berwyn, IL

Date Started 11/30/2007

Date Finished 12/5/2007

UTM (or State Plane) Coordinates







**NGVD: National Geodetic Vertical Datum

N. (x) _____ E.(y) _____

Latitude 41 ° 48 ' 48 " Longitude 87 ° 49 ' 25 "

Boring Location See Figure 1

Drilling Equipment Hollow Stem Auger

		SAMPLES							BB&J Personnel	
Elev	DESCRIPTION OF MATERIALS	Graphic Log	Depth in Feet	SAMPLE ID	SAMPLE TYPE	SAMPLE RECOVERY (IN)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA OR PID READINGS (PPM)	REMARKS
21	Very dense black GRAVEL (GP); dry		21	K	G	14		56	2.3	G - Mike Couvreur G- Jacob McNamara D- Marc, CS Drilling H- Ross, CS Drilling BB&J submitted soil sample collected at 38-40 feet bgs for laboratory analyses.
22			22							
23	Very firm to very dense dark brown clayey SAND (SC); dry		23	L	G	10		43	3.8	
24			24							
25			25	M	G	6		67	11.1	
26			26							
27	Stiff dark brown silty CLAY (CL), with gravel; moist		27	N	G	6		16	3.1	
28			28							
29			29	O	G	18		12	3.2	
30			30							
31	Stiff black GRAVEL (GP); moist		31	P	G	14		7	3.1	
32			32							
33			33	Q	G	16		9	2.1	
34			34							
35	Stiff black GRAVEL (GP); moist		35	R	G	12		16	9.2	
36			36							
37			37	S	G	16		33	8.8	
38			38							
39	Stiff black GRAVEL (GP); moist		39	T	G	6		32	54.2	
40			40							


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 Ground water encountered during drilling.

Site File No. 10415 - 0259004 County Cook

Boring No. SIR MW-4

Monitor Well No. N/A

Site File Name Lyons, IL

Surface Elev. N/ACompletion Depth 96 feet

Fed ID No. _____

Auger Depth N/ARotary Depth N/A

Quadrangle	Berwyn, IL
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Date Started 11/30/2007Date Finished 12/5/2007

UTM (or State Plane) Coordinates

**NGVD: National Geodetic Vertical Datum

N. (x) _____ E.(y) _____

Latitude 41 ° 48 ' 48 " Longitude 87 ° 49 ' 25 "

Boring Location	<u>See Figure 1</u>
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Drilling EquipmentHollow Stem Auger

Latitude 41 ° 48 ' 48 " Longitude 87 ° 49 ' 25 "			SAMPLES						BB&J Personnel	
Boring Location See Figure 1										G - Mike Couvreur
Drilling EquipmentHollow Stem Auger										G- Jacob McNamara
Elev	DESCRIPTION OF MATERIALS	Graphic Log	Depth in Feet	SAMPLE ID	SAMPLE TYPE	SAMPLE RECOVERY (IN)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA OR PID READINGS (PPM)	D- Marc, CS Drilling
										H- Ross, CS Drilling
REMARKS										
41	Very firm dark brown clayey SAND (SC), with gravel; moist		41	U	G	12		22	29.1	Ground water encountered at 53 feet bgs.
42			42							
43	Very stiff gray silty CLAY (CL); moist		43	V	G	20		16	14.1	
44			44							
45	Firm black silty SAND (SM), with gravel; damp		45	W	G	16		25	9.6	
46			46							
47	Firm dark gray silty SAND (SM); damp		47	X	G	18		15	11.8	
48			48							
49	Very stiff dark gray silty CLAY (CL); moist		49	Y	G	18		17	17.3	
50			50							
51			51	Z	G	12		15	14.6	
52			52							
53	Stiff dark brown CLAY (GC), with gravel; wet		53	AA	G	14		15	3.7	
54			54							
55	Very stiff gray CLAY (CL); moist		55	AB	G	22		33	3.5	
56	Very firm to dense dark gray clayey SAND (SC), with gravel; damp		56	AC	G	16		14	2.9	
57			57							
58			58							
59			59	AD	G	14		30	2.9	
60			60							
Pieces of wood observed.										

NOTES:

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S: Saturated
OV: Organic Vapors
Ground water encountered during drilling.

Field Boring Log

Page 4 of 5

Site File No. 10415 - 0259004 County Cook

Boring No. SIR MW-4

Monitor Well No. N/A

Site File Name Lyons, IL

Surface Elev. N/A

Completion Depth 96 feet

Fed ID No. _____

Auger Depth N/A

Rotary Depth N/A

Quadrangle Berwyn, IL

Date Started 11/30/2007

Date Finished 12/5/2007

UTM (or State Plane) Coordinates _____

**NGVD: National Geodetic Vertical Datum

N. (x) _____ E.(y) _____

Latitude 41 ° 48 ' 48 " Longitude 87 ° 49 ' 25 "

Boring Location See Figure 1

Drilling Equipment Hollow Stem Auger

		SAMPLES							BB&J Personnel	
		Graphic Log	Depth in Feet	SAMPLE ID	SAMPLE TYPE	SAMPLE RECOVERY (IN)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA OR PID READINGS (PPM)	REMARKS
Elev	DESCRIPTION OF MATERIALS									
61	Dense dark gray clayey SAND (SC), with gravel; damp		61	AE	G	16		39	2.9	Wood debris encountered.
62	Hard black silty CLAY (CL); moist		62							
63			63	AF	G	14		50	0.7	
64			64							
65			65	AG	G	20		36	0.9	
66			66							
67			67	AH	G	10		64	0.6	
68			68							
69	Very stiff black silty CLAY (CL); wet		69	AI	G	16		27	0.7	
70			70							
71	No Recovery		71	AJ	G	0		25	0.0	Ground water encountered at 67 feet bgs. Wood debris encountered.
72			72							
73	Semi-stiff black silty CLAY (CL), with wood debris; wet		73	AK	G	8		85	0.0	
74			74							
75	Stiff black sandy CLAY (SC), with wood debris; damp		75	AL	G	22		77	0.5	
76			76							
77	Stiff brown CLAY (CL); damp		77	AM	G	24		33	0.0	
78			78							
79	No Recovery		79	AN	G	12		39	2.0	
80	Semi-stiff gray CLAY (CL); moist		80							


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S: Saturated
OV: Organic Vapors
 Ground water encountered during drilling.

Field Boring Log

Page 5 of 5

Site File No. 10415 - 0259004 County Cook

Boring No. SIR MW-4

Monitor Well No. N/A

Site File Name Lyons, IL

Surface Elev. N/A

Completion Depth 96 feet

Fed ID No. _____

Auger Depth N/A

Rotary Depth N/A

Quadrangle Berwyn, IL

Date Started 11/30/2007

Date Finished 12/5/2007

UTM (or State Plane) Coordinates




**NGVD: National Geodetic Vertical Datum

N. (x) _____ E.(y) _____

Latitude 41 ° 48 ' 48 " Longitude 87 ° 49 ' 25 "

Boring Location See Figure 1

Drilling Equipment Hollow Stem Auger

		SAMPLES							BB&J Personnel	
Elev	DESCRIPTION OF MATERIALS	Graphic Log	Depth in Feet	SAMPLE ID	SAMPLE TYPE	SAMPLE RECOVERY (IN)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA OR PID READINGS (PPM)	REMARKS
81	Hard brown CLAY (CL); damp		81	AO	G	24		48	0.0	Wood debris at 83 feet bgs.
82	Hard brown CLAY (CL); moist		82							
83	No Recovery		83	AP	G	12		35	0.0	
84	Hard brown CLAY (CL); moist		84							
85			85	AQ	G	24		33	0.0	
86			86							
87			87	AR	G	24		36	0.0	
88			88							
89			89	AS	G	24		35	0.0	
90			90							
91			91	AT	G	24		29	0.0	
92			92							
93			93	AU	G	24		31	0.0	Bedrock encountered at 96 feet bgs.
94			94							
95			95	AV	G	18		42	0.0	
96			96							
97	Terminated boring at 96 feet bgs.		97							
98			98							
99			99							
100			100							


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 Ground water encountered during drilling.

Field Boring Log

Page 1 of 2

Site File No. 10415 - 0259004 County Cook

Boring No. SIR MW-5

Monitor Well No. N/A

Site File Name Lyons, IL

Surface Elev. N/A

Completion Depth 21 feet

Fed ID No. _____

Auger Depth N/A

Rotary Depth N/A

Quadrangle Berwyn, IL

Date Started 11/28/2007

Date Finished 11/28/2007

UTM (or State Plane) Coordinates _____

**NGVD: National Geodetic Vertical Datum

N. (x) _____

E.(y) _____

Latitude 41 ° 48 ' 48 " Longitude 87 ° 49 ' 25 "

Boring Location See Figure 1

Drilling Equipment Hollow Stem Auger

Latitude 41 ° 48 ' 48 " Longitude 87 ° 49 ' 25 "		SAMPLES							BB&J Personnel	
Boring Location See Figure 1										G - Hilary Zawidowski
Drilling EquipmentHollow Stem Auger										H- Ross, CS Drilling
Elev	DESCRIPTION OF MATERIALS	Graphic Log	Depth in Feet	SAMPLE ID	SAMPLE TYPE	SAMPLE RECOVERY (IN)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA OR PID READINGS (PPM)	REMARKS
..... 1	Very soft brown silty CLAY (CL); dry	 1	A	G	24		0	0.0	
..... 2			..... 2						
..... 3			..... 3						
..... 4	Very dense gray sandy GRAVEL (GP); dry	 4	B	G	24		117	0.9	BB&J submitted soil sample collected at 2-3 feet bgs for laboratory analyses.
..... 5			..... 5						
..... 6	Hard brown sandy CLAY (CL); dry	 6	C	G	12				63	0.5	Wood construction debris
..... 7	Very stiff brown silty CLAY (ML); moist		..... 7						
..... 8			..... 8						
..... 9			..... 9						
..... 10	Loose light brown sandy GRAVEL (GP); moist	 10	E	G	24		19	1.0	BB&J submitted soil sample collected at 8-10 feet bgs for laboratory analyses.
..... 11	Stiff brown CLAY (GC), with gravel; moist		..... 11						
..... 12			..... 12						
..... 13	Very stiff brown SAND (SW); dry	 13	G	G	24	86	0.7		
..... 14			..... 14						
..... 15		 15	H	G	24				102	0.6
..... 16			..... 16						
..... 17	Very stiff brown and gray SAND (SP), with gravel; moist	 17	I	G	18	111	0.7	BB&J submitted soil sample collected at 16-18 feet bgs for laboratory analyses.	
..... 18		 18							
..... 19	Very stiff brown SAND (SP), with gravel; wet	 19	J	G	24			84	0.3
..... 20		 20							

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 Ground water encountered during drilling.

Field Boring Log

Page 2 of 2

Site File No. 10415 - 0259004 County Cook

Boring No. SIR MW-5

Monitor Well No. N/A

Site File Name Lyons, IL

Surface Elev. N/A

Completion Depth 21 feet

Fed ID No. _____

Auger Depth N/A

Rotary Depth N/A

Quadrangle Berwyn, IL

Date Started 11/28/2007

Date Finished 11/28/2007

UTM (or State Plane) Coordinates


**NGVD: National Geodetic Vertical Datum

N. (x) _____ E.(y) _____

Latitude 41 ° 48 ' 48 " Longitude 87 ° 49 ' 25 "

Boring Location See Figure 1

Drilling Equipment Hollow Stem Auger

Latitude 41 ° 48 ' 48 " Longitude 87 ° 49 ' 25 "				SAMPLES							BB&J Personnel			
Boring Location See Figure 1										G - Hilary Zawidowski				
Drilling EquipmentHollow Stem Auger										G- Amber Cicotte				
				Graphic Log	Depth in Feet	SAMPLE ID	SAMPLE TYPE	SAMPLE RECOVERY (IN)	PENETROMETER	N VALUES (BLOW COUNTS)	O/A OR PID READINGS (PPM)	D- Marc, CS Drilling		
Elev	DESCRIPTION OF MATERIALS											H- Ross, CS Drilling		
				REMARKS										
21	No Recovery				21	K	G	0		0	0.0	Bedrock encountered at 22 feet bgs.		
22					22									
23	Terminated boring at 22 feet bgs.				23									
24					24									
25					25									
26					26									
27					27									
28					28									
29					29									
30					30									
31					31									
32					32									
33					33									
34					34									
35					35									
36					36									
37					37									
38					38									
39					39									
40					40									


NOTES:





















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S: Saturated
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 Ground water encountered during drilling.

Group Symbols	Color Code
GW	
GP	
GM	
GC	
SW	
SP	
SM	
SC	
ML	
CL	
OL	
MH	
CH	
OH	
Pt	
Fill	
Asphalt	
Sandstone	
Concrete	
Bedrock	
Limestone	